2045

M113 APC in Vietnam

David Doyle

In Action®

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Don Greer 2009

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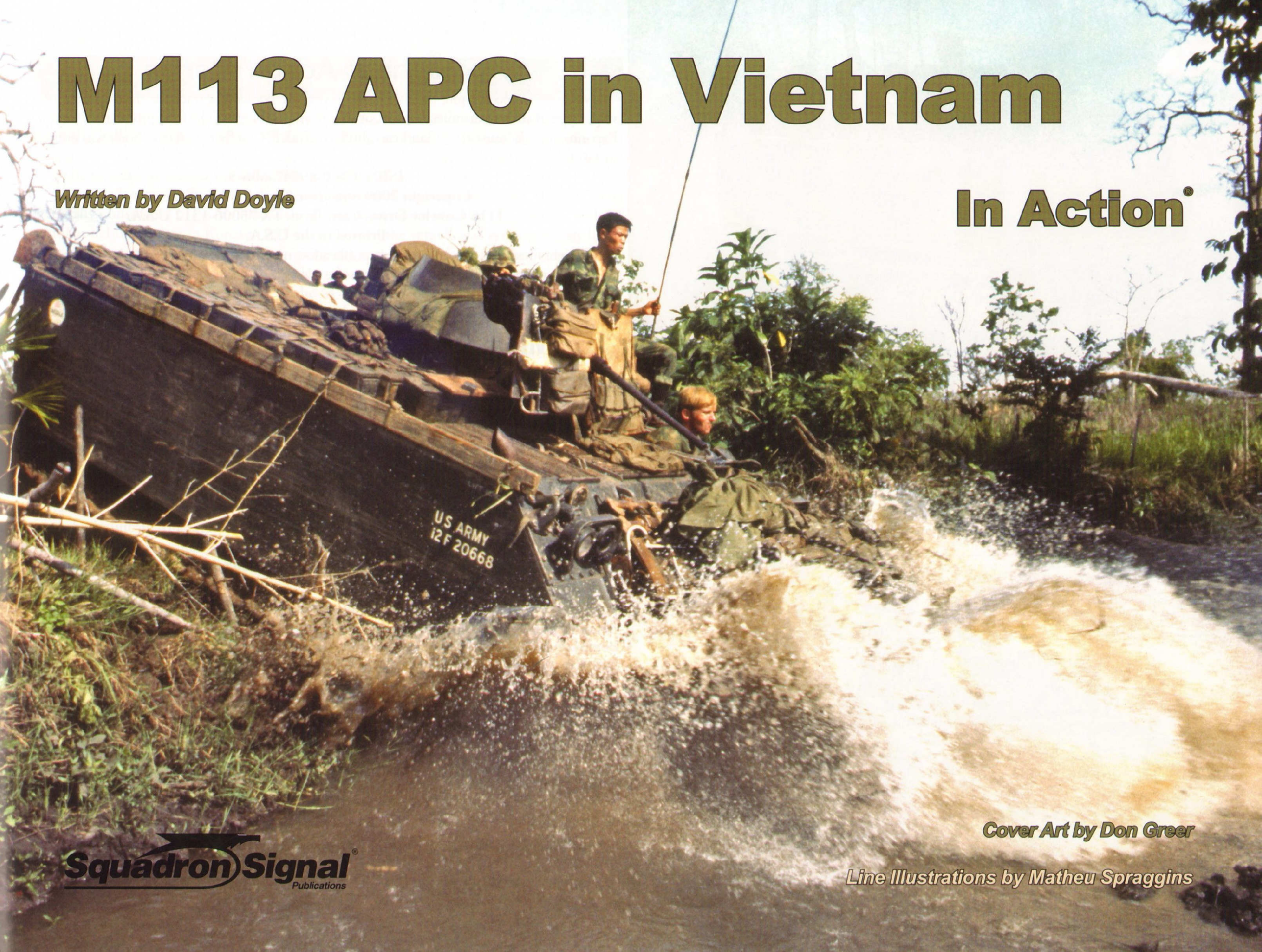
Written by David Doyle



Squadron Signal® Publications

Cover Art by Don Greer

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(Front Cover) Medicine Man's Head Shoppe G Troop, 2/11th Cav M113A1 ACAV commanded by Doug Kibbey. This track carried the Troop Medic and his medical supplies, as well as two stretchers slung from chains from the ceiling. The front slope logo is a play on words of the Gram Parsons/Gene Clark (Byrds) song, "He's a drug store truck drivin' man."

(Back Cover) A Troop, First Squadron, First Cav, Americal Division move along the beach of the South China Sea toward Hill 29 in August 1968.

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(Title Page) An M113A1 of the 2nd Battalion, 47th Infantry Regiment, splashes into a creek in the Chalang and Memot District of Cambodia in May 1970. The trim vane is deployed and is deflecting the wave away from the front of the vehicle, on the roof of which is a .50-caliber machine gun.

Acknowledgments

All photos from the U.S. National Archives unless otherwise stated.

Further, this book would not have been possible without the generous assistance of Tom Kailbourn; Doug Kibbey; Chris Harlow; Carl Heller; John Adams-Graf; William Powis; and especially Denise – who patiently traveled with me coast to coast as we researched this volume.

Dedication

Dedicated to the sons, fathers, brothers, and husbands who left so much of themselves in Vietnam.

Introduction

For the duration of World War II, U.S. troops rode into battle in open-topped vehicles, typically half-tracks and trucks. While providing excellent visibility and allowing for a quick dismount for ground action, the obvious drawback was the constant exposure of the GIs to snipers, massed opposing fire, aircraft, and the elements.

The need for a fully-enclosed armored personnel carrier was clear. The M75 is generally considered to be the first such vehicle successfully used by U.S. troops, with its combat debut coming in Korea in 1953. The cost of the vehicle was extraordinarily high, however, due in large part due to its use of parts common to that of tanks of the time.

Accordingly, the army sought to develop a lower-cost vehicle and also wanted one that would retain the positive attributes of the M75, but weigh less in order to be airmoble. The vehicle that resulted from this quest was the M113, standardized in April 1959.

FMC Corporation initiated production of the new vehicle in 1960, and until the advent of the Bradley Fighting Vehicle decades later, the M113 and its updated successors served as the standard armored personnel carrier of the U.S. Army. While now only in limited use by U.S. armed forces, the M113 remains in service in many other nations. Never given an official name (despite some reports to the contrary) the long-serving vehicles were known to their crews as "tracks" or "one-one-threes."

The aluminum-hulled, gasoline powered M113 and Diesel-powered M113A1 served in Vietnam as the "battle taxi" – shuttling combat-ready GIs through the brush, and their wounded brethren to aid stations. The threat of mines lead many troops to ride on the outside of the vehicles, which often bristled with machine guns and grenades.

A hydraulically-operated ramp in the rear allowed for a quick exit for dismounted operations, and a smaller personnel door mounted in it allowed a slower-paced entrance or exit. At the front of the vehicle was the driver's position, and to his right was the power plant. The driver was provided with four M17 periscopes, and his hatch had provision for a M19 infrared periscope as well. The commander's station is behind the driver and powerplant, and he had a cupola equipped with five M17 periscopes and a M2 HB machine gun. There were provisions for 11 passengers to ride in the carrier. An unusual feature of the M113 was its hydraulically tensioned track. The M113 was amphibious, its tracks propelling it in the water. However, since there was only 14 inches of freeboard when the vehicle was in the water, this feature was rarely if ever used.

The initial M113 was powered by a Chrysler 75M V-8 gasoline engine driving through an Allison TX200-2 transmission. After a series of trials, a version powered by the General Motors 6V53 V-6 diesel engine was standardized as M113A1 in May 1963. The V-6 diesel's power was transmitted to the track through an Allison TX-100 automatic transmission and a DS-200 controlled differential. Due to their increased survivability because of the less-volatile diesel fuel, priority went to equipping units in Vietnam with the M113A1 variant. By 1 July 1968, all M113s in Vietnam had diesel engines. Equally significant, in Vietnam the M113 began to see combat, rather than merely serve as a personnel *carrier.* Mountings for additional armament and gunshields were developed, known as the Armored Cavalry Assault Vehicle (ACAV) kit."

A file photo from the U.S. Army Tank-Automotive Center dated 14 November 1966, shows an early M113A1, the diesel-fueled variant of the M113. There are location stencils and mounting lugs for spare track shoes on the left side of the glacis. (TACOM LCMC)

This M113 is equipped with ACAV gun shields and track shrouds (sometimes called sand shields), which were often removed during operations in Vietnam. Welded to the outside of the glacis on both sides are heavy-duty lifting or towing eyes, sometimes found on early M113s. (Rock Island Arsenal Museum)

M113s of Troop B, 1st Battalion, 4th Cavalry, patrol their assigned area north of Saigon in October 1965. The armored shield for the M2 .50-caliber machine gun appears to be an early attempt to provide protection for the gun mount. The front and side plates are vertical, in contrast to the later, sloped ACAV shield, and the aperture for the gun in the front of the shield is offset far to the right. Three large rolls of barbed wire are stowed on the trim vane.

A column of M113s of the 2nd Battalion (Mechanized), 22nd Infantry Regiment, moves through the base camp of the 3rd Brigade, 25th Infantry Division, at Dan Tieng, South Vietnam in early September 1967. The APCs are outfitted with ACAV-style gun shields for the .50-caliber cupola-mounted machine gun and for M60 machine guns behind of the cupola. Technically, the term ACAV was only applied to gun shield-equipped M113s of cavalry units. The second vehicle appears to lack the front armored shield.

February 1967 a squad from Company C, 5th Battalion (Mechanized), 60th Infantry Regiment, prepares to cross a bridge leading into Ap Tinh Thi, South Vietnam. All of the soldiers except for the one in the center wearing the combat vehicle crewman's (CVC) helmet are wearing M1952A flak vests, jungle boots, and Mitchell-pattern covers on their M1 helmets. Note the large but faint red "3" painted on the rear of the side of the hull.

Crews of M113 APCs of Company C, 2nd Battalion (Mechanized), 22nd Infantry Regiment, prepare to move out of their base camp at Dau Tieng in early September 1967. Their mission was to clear a free-fire zone on the south side of Ben Cui, the world's largest rubber plantation. The vehicles are equipped with ACAV-style shields for the .50-caliber machine guns. The farthest M113 has double five-gallon liquid containers strapped to the left rear of the hull.

Specialist 4th Class Bruce Engstron of Company B, 4th Battalion, 23rd Infantry Regiment, drives his M113 from outside of the vehicle with extensions to the steering levers during a search-and-destroy mission north of Saigon in October 1967. This technique was used to protect the driver when operating in areas where antitank mines were liable to be encountered. Engstrom is wearing a headset under his M1 helmet rather than using a CVC helmet. There is early attempt at an armored shield around the .50-caliber machine gun, and a flash suppressor on the gun.

In August 1967 a squad from Company C, 2nd Battalion, 8th Infantry Regiment (Mechanized) conducts a cordon and search mission using an M113. An evidently nonstandard, angular shield has been mounted to the commander's cupola; cutouts were incorporated into the bottom of the shield to allow for the cupola's periscopes. A .50-caliber machine gun tripod is between the shield and the wooden crate. The commander and driver are wearing CVC helmets and M1952A flak vests.

An M113 of the 11th Armored Cavalry Regiment provides road security during Operation Santa Fe, an effort to secure the area east of the regiment's Blackhorse Base Camp in early November 1967. With the M113's light armored protection, it was often safer to sit atop the vehicle than inside when land mines were a threat. The barbed concertina wire was deployed around the perimeter of laagers, or encampments, at night.

A column of M113s pushes each other through an extremely mucky rice paddy at Dinh Thuong, South Vietnam, during Operation Coronado II in August 1967. This type of operation was pushing the M113 to its limits. The man sitting on the lead vehicle appears to be Vietnamese: probably an interpreter or guide.

"Wyss' Woad Wunner" takes up a defensive position along a road during Operation Santa Fe in November 1967. Faintly visible below the white swatch is stenciled vehicular information. Tent poles are stored above the trim vane.

Members of an M113 crew have secured the area and are settling in for the night during Operation Santa Fe. Cots were often carried on M113s as a "luxury" item. A duffel bag and M1 helmet rest on a ration box, while a shovel, axe, and M16 rest against the side of the vehicle.

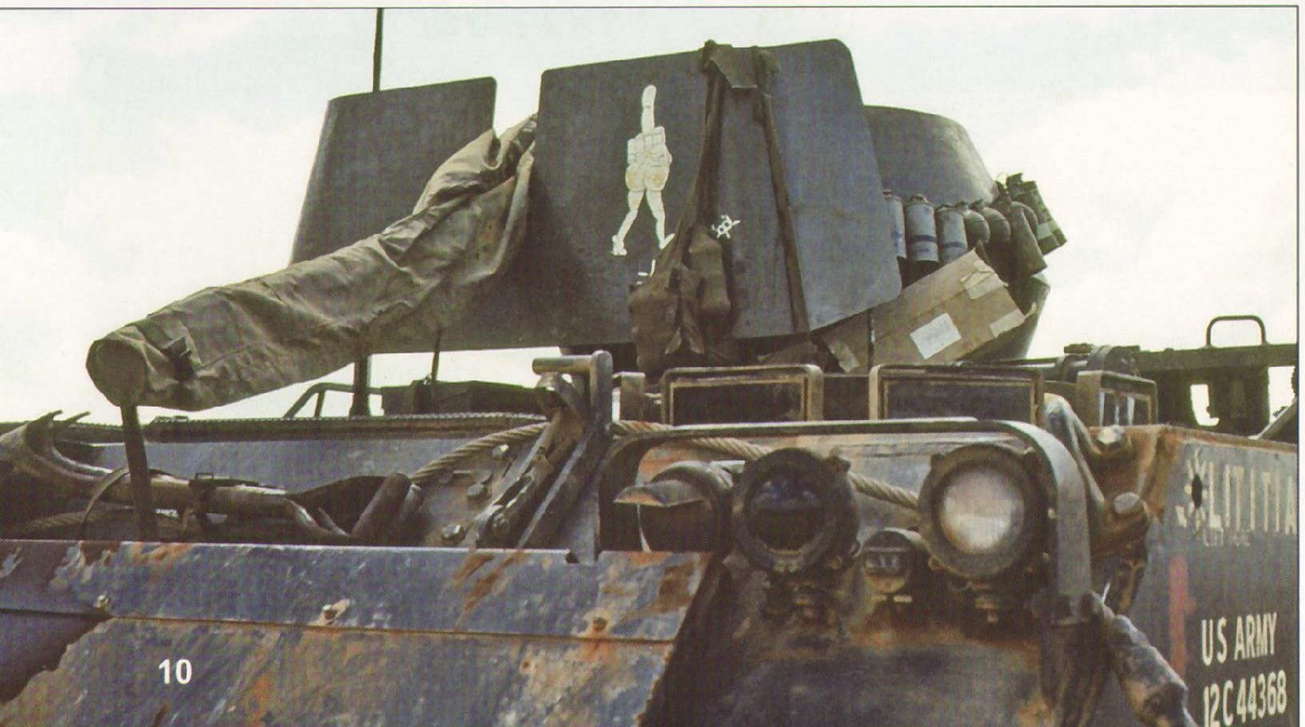
ACAVs of the 11th Armored Cavalry Regiment are lined up at the Blackhorse Base Camp at the time of Operation Santa Fe. In the background are two M48 or M60 armored vehicle-launched bridges, to the left of which are an M132 or M132A1 self-propelled flame thrower and an M48 medium tank.

A commanding officer's ACAV-type M113 was photographed at the 11th Forward Headquarters at Bien Hoa. The interior presents an untidy appearance, with an Igloo water cooler, bucket, empty cans, crates, and a bundle of gear. Note the ACAV in the background. (Chris Harlow)

Mechanics with the 2nd Battalion, 8th Infantry Regiment (Mechanized) in Vietnam perform repairs on the Detroit Diesel engine of an M113A1 in August 1967. The vehicle's trim vane is dropped down, exposing the engine compartment. Projecting between the chains at the top of the engine is the air intake.

The gun shield of this ACAV of the 11th Armored Cavalry Regiment bore a cartoon of a walking hand with the middle finger extended. A canvas cover is fitted over the M2 machine gun, and grenade bandoleers are draped over the shield. A crewman with a decorative touch painted a pattern around the bilge pump outlet above the "lift here" stencil at the right. (Chris Harlow)

Crewmen from the 11th Armored Cavalry Regiment repair the track of an ACAV belonging to the 919th Engineer Company. The two shirtless men squatting down appear to be removing a track pin. Several track shoes are lying on the ground next to them. Distinguishable amid the clutter on the roof of the vehicle are an M60 machine gun and M16 rifle. (Chris Harlow)



M113A1 ACAVs and M48 medium tanks from Troop A, 4th Battalion, 12th Cavalry Regiment, are parked near Highway 1 in late August 1968. The two closest ACAVs have stakes loosely set into brackets at the four corners of the body, for attaching a sunshade. Ration cartons are secured to the rear of the roof of the nearest ACAV, and two rolls of barbed wire and somebody's trousers are on the trim vane.

An ACAV from the 9th Division crosses a creek outside of Fire Support Base Bastogne *en route* to joining a convoy on 16 April 1968. All the crewmen are wearing flak vests; the soldier manning the M60 appears to be wearing an M1952A flak vest, which was characterized by epaulettes on the shoulders and no collar. The other men seem to be wearing later flak jackets with low collars, possibly M69s.

Two officers armed with pistols at the rear of an M113 prepare to get to work during Operation Yellowstone in Vietnam during January 1968. The officer seated on the Mermite can is studying a map, while a ration can is warming up on a camp stove on top of a stack of C-ration cartons. Note the sand bags piled up by the rear of the vehicle.

An M113 takes up a position on a Saigon street in January 1968, as the crew prepares to recover bodies from an ambush in an alley near officers' quarters. Although the driver has his head up through his hatch and the soldier in the rear has his helmet removed, all the crewmen are evidently wary. The M2 machine gun has a shield, but the armored enclosure above the commander's cupola is not the usual round ACAV type, but fabricated from flat plates.

Two 114th Cavalry ACAVs drive through Saigon in January 1968. Sections of spare track shoes (eight on the lead vehicle) are stored on the front left of both vehicles. Because the M113 used "live" tracks, which tended to curl up at the ends, the lower ends of the track sections hang straight without drooping. A coat of mud clings to the trim vane and part of the spare tracks but is not noticeable on the surrounding areas of the hull.

An M113 of the 25th Infantry Division helps clear out Vietcong troops from a Saigon cemetery during the 1968 Tet Offensive. Fitted around the .50-caliber machine gun is an angular armored shield. The commander has shed his helmet and is wearing a close-fitting black hat or cap.

M113s of Company A, 3rd Battalion, 22nd Infantry Regiment (Mechanized), pass through a burned-out area *en route* to the site of a new encampment during Operation Yellowstone in January 1968. Some crews have added their own personal touches to their APCs, such as the one to the right of center with the sandbags protecting the driver's position.

Specialist 4th Class Denny Head, senior aid man of Company A, 3rd Battalion, 22nd Infantry Regiment (Mechanized), removes his air mattress from a dugout during Operation Yellowstone, January 1968. The M113 crews would dig these dugouts and then park their vehicles over them, forming a secure bunker in which to sleep. The corrugated steel sections, carried on the sides of some of the M113s, were propped up against the road wheels to form revetments.

In other cases, rather than go to the trouble of constructing dugouts for camping purposes, the M113 crews of Company A would simply drive their vehicles on top of rows of sandbags, as demonstrated in this first in a sequence of photos taken during Operation Yellowstone. A section of corrugated metal is stored on the side of the M113 in the foreground.

Once their M113 is safely parked on top of the rows of sandbags, two soldiers of Company A stuff sandbags under the tracks, for stability.

Next, sections of corrugated metal are set up around the front and sides of the vehicle. Then, sandbags will be piled up around the metal sheets, to hold them in place and afford extra protection to those sleeping under the M113.

The M113 crews of Company A, 3rd Battalion, 22nd Infantry Regiment (Mechanized), make ready to leave an encampment during Operation Yellowstone. The closest M113 has an early, angular shield around the .50-caliber machine gun mount, while the next vehicle has the ACAV-style round turret and frontal shield. The lead vehicle is undergoing refueling; the 55-gallon fuel cans are in a cargo net, indicating that they were probably air-lifted to the site by helicopter.

The crew of an ACAV of Troop A, 11th Armored Cavalry Regiment, conducts a sweep around Long Bing, South Vietnam. A 20mm ammunition box, commonly used for storing long belts of 7.62mm ammunition, is stored above the trim vane, the lower far corner of which is bent and apparently damaged. Suspender or knapsack straps with shoulder pads are cinched around the .50-caliber gun shield.

ACAVs of Troop A, 3rd Squadron, 4th Cavalry Regiment, are *en route* to Landing Zone Hampton after finishing a reconnaissance in force on 3 August 1969. Several vehicles have rolls of chain-link fencing stored on the fronts. Fencing was set up around vehicles at night to thwart rocket-propelled grenade attacks. One of the vehicles in the line is an M113-based marginal terrain assault bridge (also called the lightweight folding assault bridge). At the rear of the column is an M551 Sheridan light tank.

An M113A1 from Company C, 27th Engineer Battalion, 45th Engineer Group, gives a tanker an assist up a slope by pushing it up a muddy road to Fire Support Base Blaze, South Vietnam, August 1969. The APC has an ACAV kit installed. A tactical marking of a yellow circle with "11" in the center is on the side of the hull.

This ACAV driver has removed the air cleaner canister and is probably about to remove and shake out the element from within it. The element could also be cleaned by spraying it with compressed air. The photo was taken in Vietnam just after Christmas 1969.

An ACAV of Troop A, 3rd Squadron, 4th Cavalry proceeds through soupy mud toward the base camp at Landing Zone Hampton, South Vietnam, on 3 August 1969. A roll of chain-link fence and an array of fold-up cots are strapped to the front. Some of the cots have white or light gray legs, while others are olive drab. The ACAV was photographed from the rear of another M113.

The crews of two M113A1s fitted out with ACAV kits perform routine maintenance on their vehicles at Tan Son Nhut Air Base, Saigon, in July 1969. They were members of Troop B, 1st Battalion, 17th Cavalry, 82nd Airborne Division. The tactical symbol for the unit is painted on the side of the farther vehicle.

M113-borne soldiers of the 984th Land Clearing Co., 11th Cavalry, provide watch during clearing operations in the dense jungle during December 1969.

This ACAV was fitted with a flotation cell on front of the trim vane, to improve the vehicle's trim when operating on water. Bandoleers are stretched across the armored shields. There is a well-defined mud line on the hull and suspension from a recent crossing of a slough. Bilge water discharged from the outlet to the upper left of the "U.S. ARMY" stenciling has washed away some of the mud. The driver's CVC helmet has a personalized design painted on it. Photo courtesy of William Powis.

Personnel from the 98th Land Clearing Company, 11th Cavalry, unload explosives from an M113A1 for a clearing operation in the South Vietnam in late December 1969. An insulated food container is on the roof of the vehicle. Inside the crew compartment are C-ration cartons and several plastic five-gallon liquid containers.

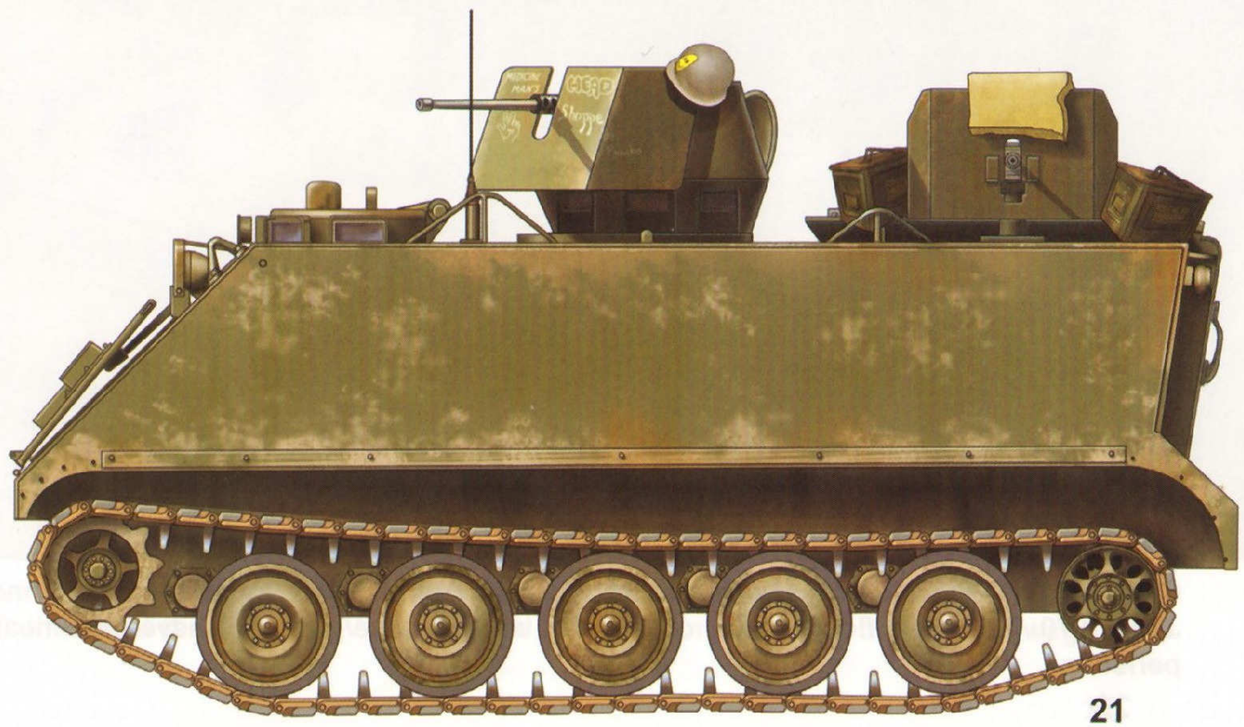
Australia supported the U.S. war effort in Vietnam by sending mechanized forces to the country, including these M113s of the 3rd Cavalry, 1st Australian Task Force, photographed at their laager in the sand dunes near Binh Gia, South Vietnam, in early August 1969. An armor shield protects the commander's .50-caliber machine gun on the vehicle in the foreground. The second vehicle, with tarps draped over the side and top, lacks the shield.

"Big Julie" is painted in matte yellow next to the vehicle number of this Australian M113. A well-worn roll of chain-link fence is strapped to the glacis above the trim vane, and the .50-caliber machine gun is equipped with a conical flash suppressor.

Vehicles of B Squadron, 3rd Cavalry Regiment, 1st Australian Task Force, were photographed at Ap Rung La, South Vietnam, in 1970. The closest vehicle, an M113, has been fitted with a Cadillac-Gage turret with twin .30-caliber or 7.62mm machine guns; a soldier is comfortably sprawled in the scooped-out turret hatch. The only visible marking is "OB" in white on the side of the hull. Next to the M113 is an M548 cargo carrier, a derivative of the M113.

ACAVs of Troop F, 2nd Squadron, 11th Armored Cavalry Regiment, stand by in the mist, their sides streaked by the moisture, prior to a reconnaissance by fire of Hill 95 on 15 June 1970. The men behind the M60 and M2 machine guns are wearing M69 flak vests. An M16 is hanging by its sling on the ACAV turret, and a bandoleer is draped over the M60 shield.

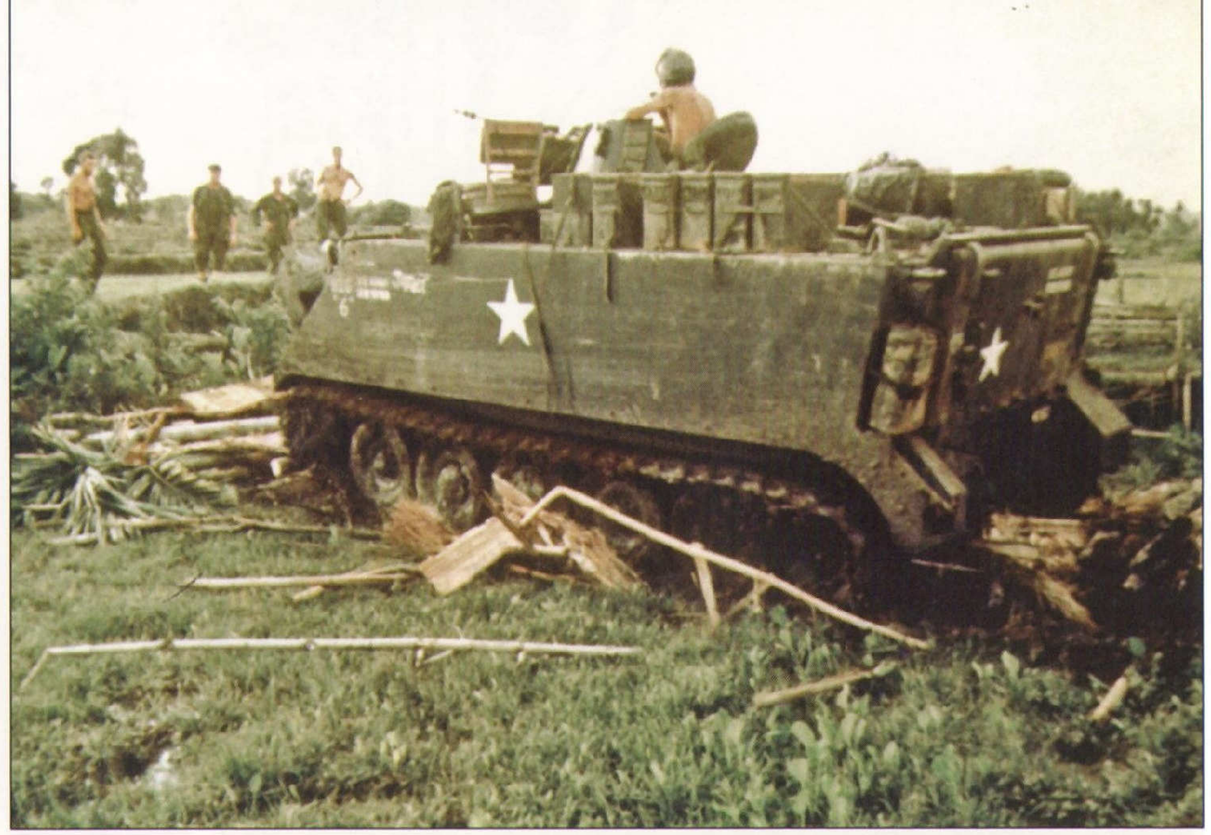
Contrary to regulations, the national star and registration number appeared only on the rear, not on the sides of the M113A1 ACAV dubbed "Medicine Man's Head Shoppe."



Captain Elbridge G. Fish II, commanding officer of Troop F, 2nd Squadron, 11th Armored Cavalry Regiment, calls for an artillery strike on a suspected enemy position on 15 June 1970. There is a flotation cell on the trim vane. Smoke grenades have been neatly arrayed on the ACAV turret. The cutout at the bottom of the turret accommodates the periscope.

The mortar platoon of Troop F, 2nd Squadron, 11th Armored Cavalry, lays down fire on Hill 95 in the III Corps area, South Vietnam, prior to an assault on 15 June 1970. One of the three ACAV-kit-equipped M106s in the foreground has its rear ramp open. The machine gun shields of the right ACAV are covered, and the trim vane is in use as a stowage rack. At least one bulldozer is in the right background.

An M113A1 of the 2nd Battalion, 47th Infantry Regiment, 9th Infantry Division crosses over an improvised bridge made from the remnants of a peasant hooch in the area of Chalang and Memot District of Cambodia in early May 1970. A flotation cell is attached to the trim vane, and a large variety of gear is stored on any available space atop the vehicle. A seat has been placed to the left of the turret.

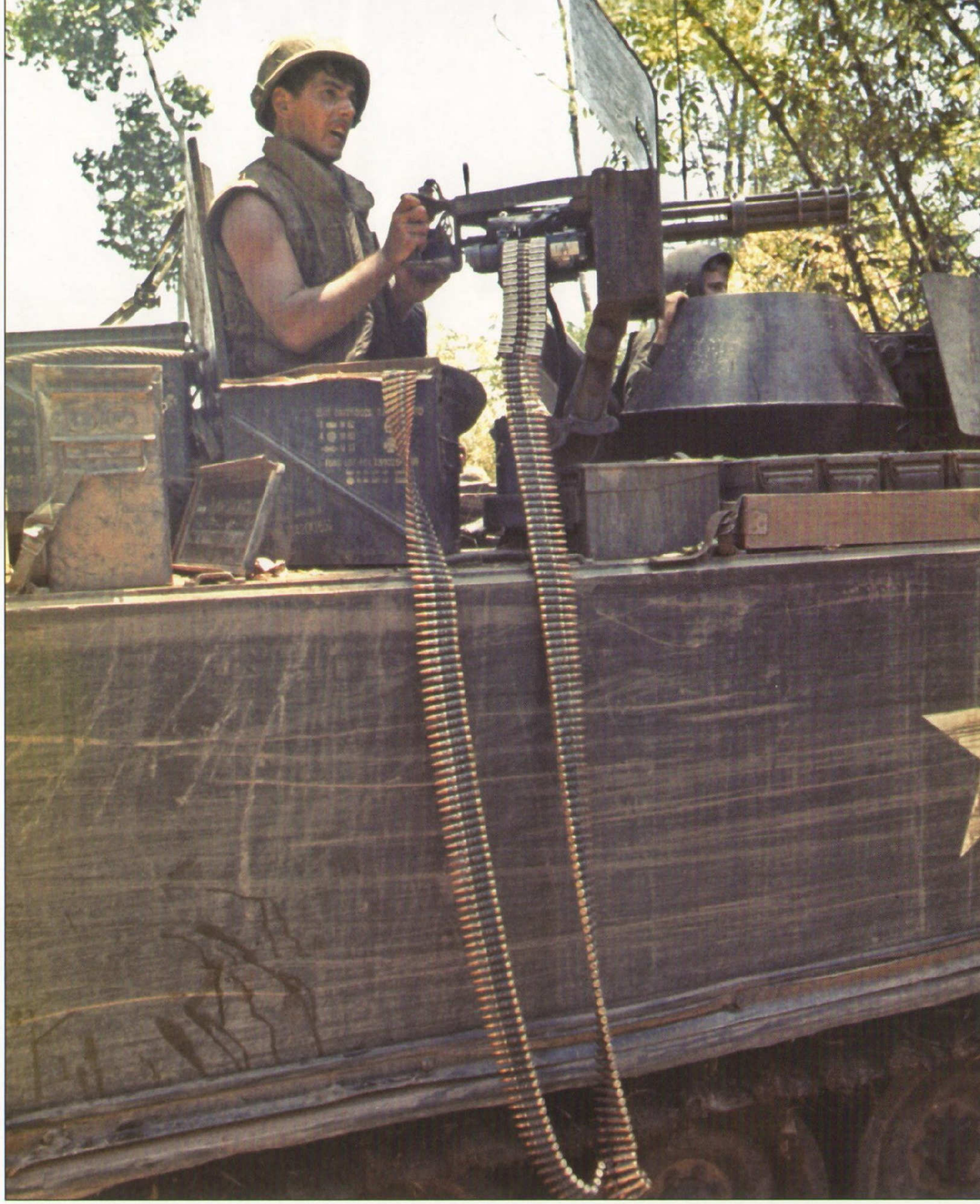


This view shows the same M113A1 driving over the remains of the hooch. The rear of the seat next to the turret is visible. Ammunition boxes, including big 20mm boxes, are secured to the roof of the vehicle.

Another M113A1 from 2/47 rolls over the same improvised bridge. This one has the same arrangement as the M113 in the previous photo, with the seat to the right of the .50-caliber machine gun turret and the 20mm ammunition cans stored on the roof, but the commander is wearing a long, white headband instead of a CVC helmet, and the crew compartment hatch is open. Dozens of .30-caliber and .50-caliber ammunition boxes are stored on the right side of the roof, with a long 2x4 incorporated into the lashings arrangement.

M113A1s of Company B, 2nd Battalion (Mechanized), 2nd Infantry Regiment, 1st Infantry Division prepare to conduct a sweep near Minh Than at the end of February 1970. As usual, there is a surplus of stored gear on the vehicles, including two shovels above the trim vane of the nearest vehicle. In addition to the flotation cell on the trim vane, extra flotation cells are mounted on the glacis on either side of the trim vane.

ACAVS of the 11th Armored Cavalry Regiment proceed down a road in the Fishhook area of southeastern Cambodia on 4 May 1970. The vehicle and crew were part of Task Force Shoemaker, whose purpose was to defeat the 7th North Vietnamese Division and the communist infrastructure active in Svay Rieng Province, Cambodia. The trim vane, headlights, and right headlight brush guard is missing from the ACAV, and the left brush guard is mangled.



This ACAV of the 2nd Battalioin, 47th Infantry Regiment (Mechanized), photographed during the Cambodian incursion in May 1970, has been fitted with a General Electric M134 minigun on the right rear machine gun mount. The electrically-driven, six-barrel Gatling gun–type weapon packed a horrendous punch, with its maximum practical rate of fire of 4,000 rounds per minute. A frontal shield is attached to the mount, and the gun is fed by a long belt of 7.62x51mm ammunition stored in a 20mm ammunition box, the lid of which is detached and leaning against the box.

Members of the press are passengers on this ACAV about to return to South Vietnam from Cambodia, 27 June 1970. Somebody has laid his shirt out to dry on the left M60 gun shield. In the background is a Sheridan light tank.

A column of M113A1s with an M48 medium tank leading the way proceeds through broken terrain back to base camp after four days in the field, South Vietnam, early April 1970. The vehicles were from Company C, 1st Battalion, 61st Infantry Regiment. As was customary in areas where land mines could be encountered, the personnel of the APCs except for the drivers are riding on top of the vehicles. On the closest M113A1, rolls of chain-link fence are stored on the rear of the roof and the side of the hull. Several picks and mattocks are stored in the taillight guards at the rear of the vehicle.

In August 1970 an M113A1 of the 25th Infantry Division makes its way past Vietnamese rice paddies, with Nui Ba Den, or the Mountain of the Black Virgin, looming in the distance. A notable landmark in an otherwise flat region, Nui Ba Den was a much fought-over piece of real estate during the Vietnam War. Painted on the .50-caliber gun shield are "Ida Grove" and "Peg." A flotation cell is present to the left of the trim vane but missing on the opposite side.

M113 armored personnel carriers loaded with much gear on the decks are crossing a creek in the area of Chalang and Memot District, Cambodia, in the first half of May 1970. The nearer vehicle appears to have become bogged down.

Troops from the 25th Infantry Division prepare to tow the M113A1 on the right out of the mire near Nui Ba Den in August 1970. A sledgehammer and shovel are stored on the grab handles at the upper rear of the vehicle on the left.

In the "Fishhook" area of southeastern Cambodia in May 1970, an M113A1 proceeds down a dirt road. The flotation cell on the front of the trim vane has taken a hard blow, denting the center of it, and one of the side flotation cells is missing.

M113A1s from the 1st Battalion (Mechanized), 2nd Brigade, 16th Infantry Regiment are on the road between Fire Base Dakota and Di An, South Vietnam, on March 7, 1970. The clear plastic wrapped around the .50-caliber machine gun protects it from moisture and/or dust. The armored turret is evidently not installed on the commander's cupola.

These two M113A1s are transporting "Popular Forces" (South Vietnamese militiamen, presumably within the crew compartment) from Long Hai to Saigon in March 1970. Several folded cots are stored on the front part of the roof, and the eyes of a tow cable are visible on either side of the rolled-up chain link fencing.

An M132 flamethrower has just shot a burst of burning, jellied gasoline at a target in Vietnam. A residue of flame is visible at the muzzle of the flamethrower. Tanks of gasoline and compressed air and plumbing related to the flamethrower took up most of the interior behind the driver's station. The soldier crouching at the left is hanging onto the open hatch of the flamethrower turret. Photo courtesy of William Powis.

In this graphic document of what a land mine could do to an M113A1, the right track and one of the road wheels of an 11th Armored Cavalry Regiment ACAV have been blown off. At least one other road wheel is severely damaged. The incident occurred on Highway 7 near Snoul, Cambodia, on 7 May 1970, two days after U.S. forces captured that town.

A column of ACAVs passes through a haze of red smoke as they cross the border from Cambodia back into South Vietnam on 27 June 1970. Folded cots are stored atop the roll of chain link fencing.

Crews of an ACAV and an M551 Sheridan light tank from of the 11th Armored Cavalry Regiment are engaged in clearing a landing zone for a medevac helicopter west of Snoul, Cambodia, on 7 May 1970. The M2 and M60 machine guns are all trained forward, and a stack of folding cots is lashed to the front of the vehicle.

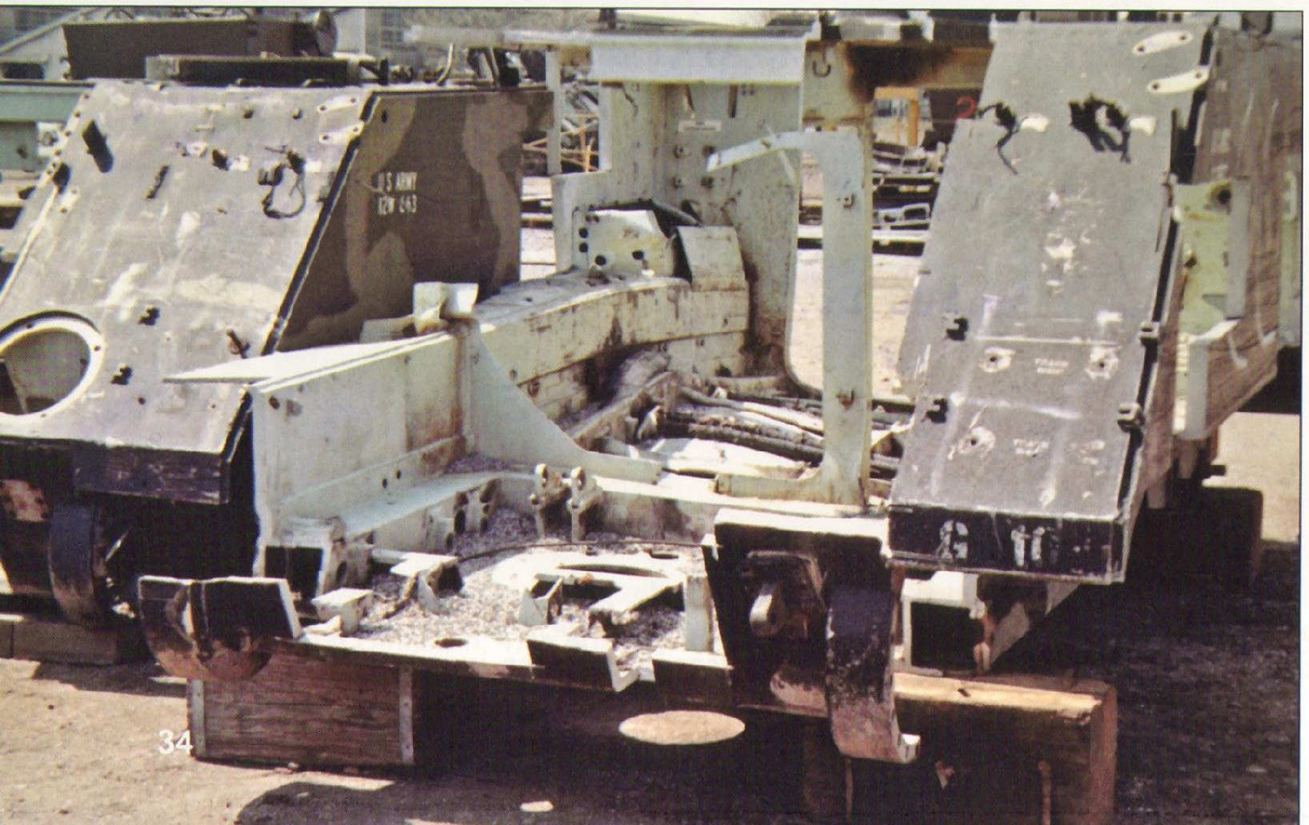
Crews of the 2nd Battalion, 47th Infantry Regiment (Mechanized) set up a laager during operations in the area of Chalang and Memot District, Cambodia, in the first half of May 1970. Most of the vehicles are M113A1s, with an M48 medium tank second in line. The pedestal, cradle, and a minigun are on the right side of the roof of the closest M113A1, behind the .50-caliber machine gun turret.

A column of ACAVS with an M551 Sheridan light tank bearing an ACAV-style machine gun turret and shield makes its way through the jungle northeast of Bien Hoa, South Vietnam, in early November 1970. These vehicles from Troop A, 1st Squadron, 11th Armored Cavalry Regiment are escorting Rome plows: large, armored bulldozers (not visible in this view). The lead vehicle lacks the front shield for the .50-caliber machine gun. The commander and the M60 gunner to the left rear are shirtless, wearing just M69 flak vests. Illegible slogans or graffiti are painted on the two M60 gun shields.

South Vietnamese "Army of the Republic of Viet Nam" (ARVN) soldiers survey this ACAV of the 3rd Armored Cavalry Regiment that hit a mine about 20 miles from Pleiku, South Vietnam, blowing off the track, several road wheels, and the cupola and shield. The cupola hatch is still standing in the open position, and the right half of the side shield is still attached to the cupola.

Detroit diesel engines have been removed from their M113A1s as part of the rebuilding process in April 1971. Pushing through brush and mire took a heavy toll on the armored personnel carriers – even those undamaged by enemy action. War-weary vehicles were shipped from Vietnam to this Ordnance Depot in Sagami, Japan, for total rebuilding.

Heavily damaged vehicles were stripped to the bare hull, with all reusable parts removed for rebuilding. Once evaluated, the hull is then either repaired, or scrapped.



After each component, including the hull, was reconditioned, the vehicles were then reassembled on an assembly line. Here civilian workman at the Ordnance Depot prepare to install the radiator and power pack of an M113A1.

This ACAV was photographed in early 1971 at Fire Support Base Vandergriff in Quang Tri Province. The sentiments of one of the crew have been scrawled on the side with spray paint. Photo courtesy of U.S. Army Transportation Musem.

With an M113 standing by in the background, GIs from 25th Infantry Division at Fire Support Base Santa Barbara unload crucial supplies – beer and soda pop – in August 1970.

Members of the 11th Armored Cavalry Regiment stop for a break during a dusty convoy run. Several of the troopers are wearing the Blackhorse regimental patch. "Joan Marie" and an indiscernible cartoon are painted on the side of the ACAV. (Chris Harlow)

A trooper of the 1st Cavalry Division (Airmobile) loads ammunition crates into the cargo compartment of an M113. Each box contained 400 rounds of .30-caliber ammunition in five-round clips. This ammunition is presumably destined for use by ARVN troops.

Probably photographed fairly early during the U.S. military presence in Vietnam, an M113 sits on a levee in a rice paddy, with local boys and a woman gathered around. Two of the boys are smoking cigarettes. One soldier is wearing a peasant hat. (Carl T. Heller)

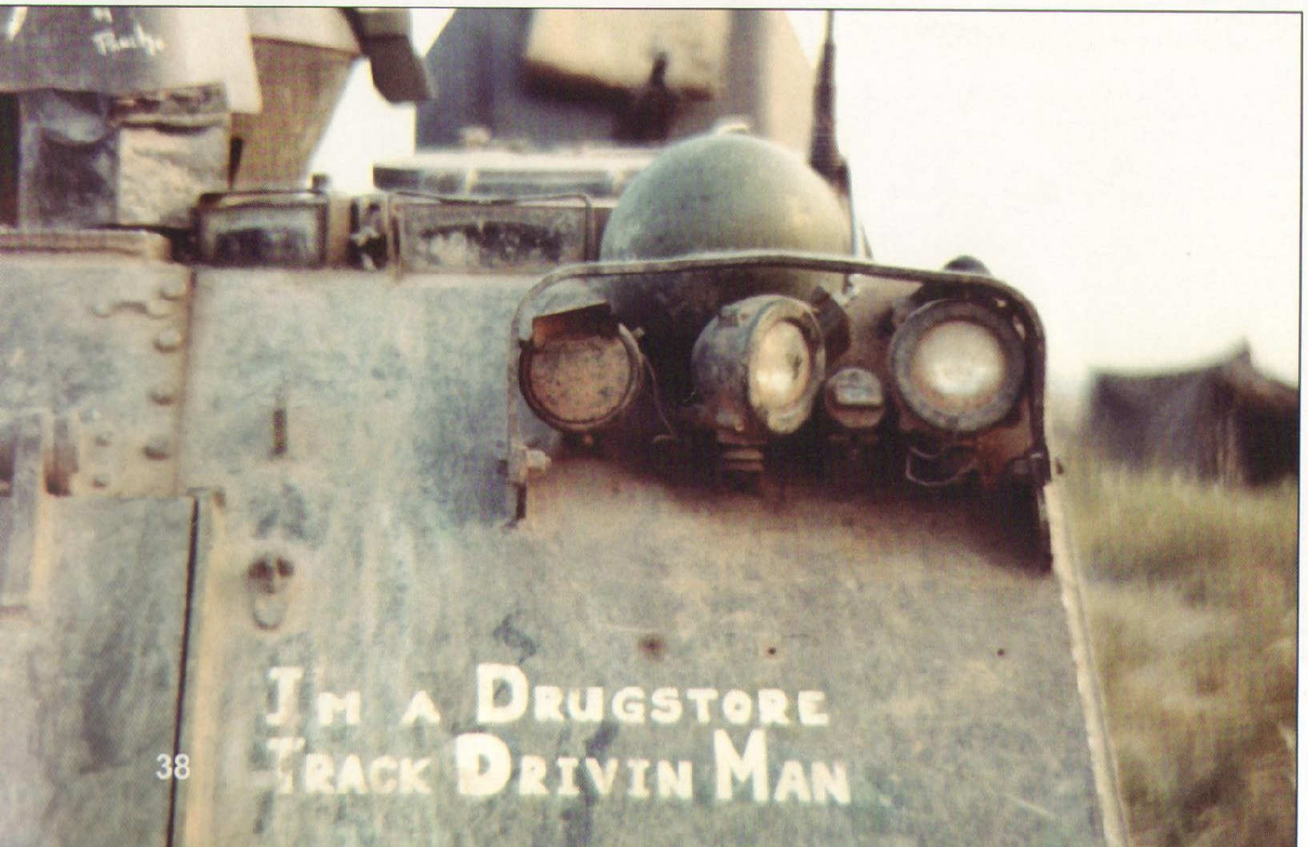
An M113 and an M48 medium tank sit back-to-back during urban combat in Vietnam. The shield assembly for the .50-caliber machine gun is an early example with welded plates on the turret portion.

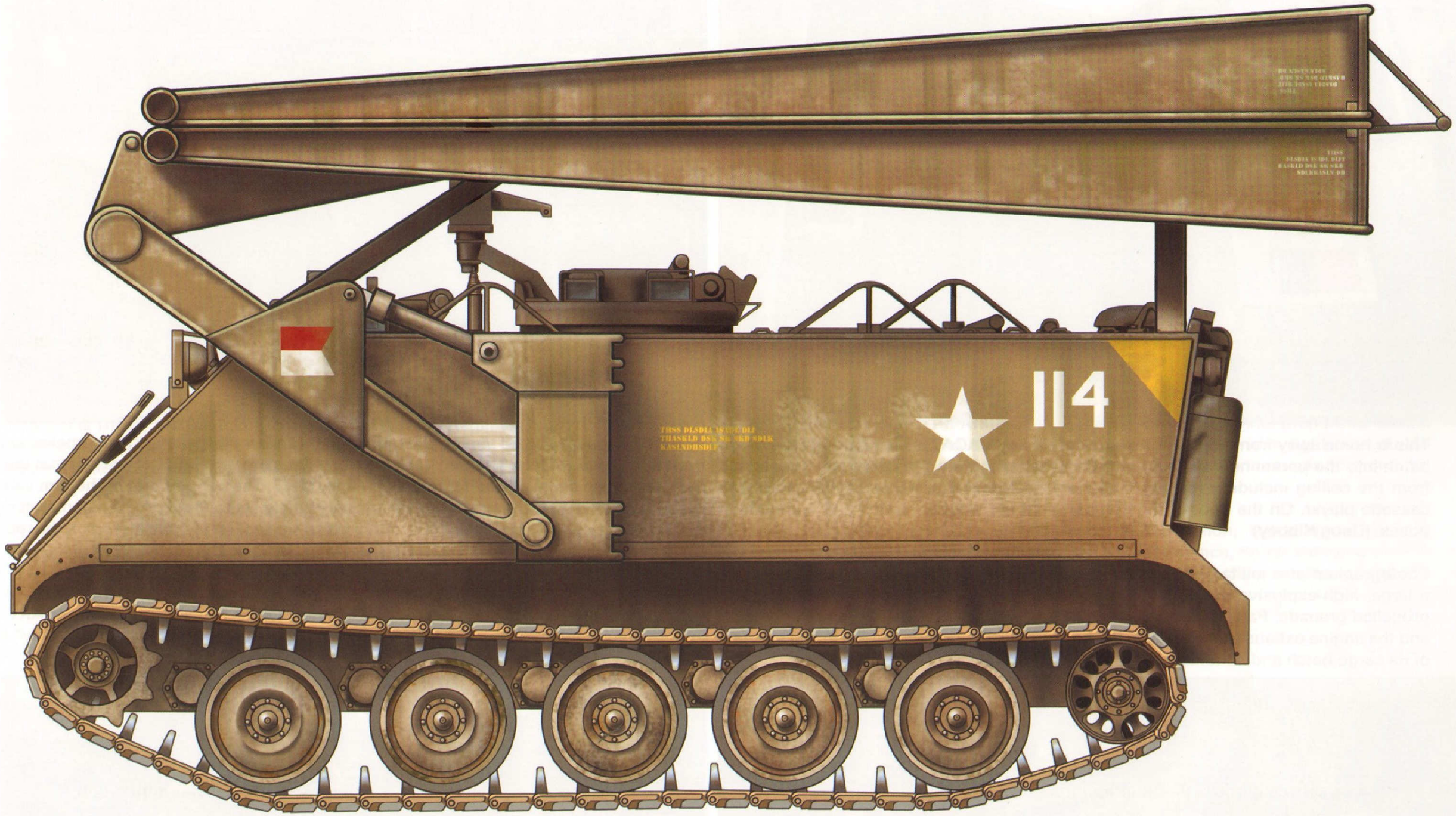
This M113A1 ACAV, dubbed "Medicine Man's Head Shoppe," was commanded by Doug Kibbey. A CVC helmet is hanging from the open-topped turret, and another helmet, probably a CVC, is in front of the driver's hatch. Photo courtesy of Doug Kibbey.

Not an illicit drug reference, these graffiti on the .50-caliber gun shield of Kibbey's ACAV meant that this track carried the troop medic and his supplies. Two stretchers slung from the ceiling on chains often doubled as crew bunks. A smiley face painted on a CVC helmet atop of the .50-caliber's receiver is visible through the aperture. (Doug Kibbey)

The saying written on glacis in front of the driver's compartment of Doug Kibbey's M113A1 is a play on the words of the Gram Parsons/Gene Clark (Byrds) song, "He's a drug store truck drivin' man." One of the vehicle's headlights is twisted to the side. (Doug Kibbey)

This side view of the open-topped ACAV turret of Kibbey's M113A1 reveals a string of fragmentation grenades and M26A1 fragmentation grenades on the side, plus several more M26A1 grenades hung on the inside. (Doug Kibbey)





This M113A1 equipped with a lightweight folding assault bridge was attached to Troop A, 3rd Squadron, 4th Cavalry Regiment, in August 1969. This portable bridge gave the squadron the ability to span creeks and ditches up to 33 feet wide. Hydraulic arms on the front and sides of the vehicle lifted and extended the folding bridge. Markings included a yellow triangle at the upper rear of the hull, a red and white guidon on the arm of the bridging mechanism, and a white rectangle next to that arm on the hull. This vehicle was intended to support armored cavalry operations. Initial efforts had been toward a M551 Sheridan-based bridge launcher, but those were deemed too large. Accordingly, the M113A1 based vehicle was developed by Engineers at Fort Belvoir, Virginia. Production of these vehicles was extremely limited - perhaps fewer than 30. Emplacing the bridge required a two-man crew, neither of whom had to leave the vehicle during the launching operation. The launching mechanism is controlled from the commander's position by three manual-control valves: a launch-cylinder control which operates the launching mechanism, a bridge- cylinder control which unfolds the bridge, and a lock-cylinder control which pins the launching mechanism to the bridge.

This is home away from home for the crew of Kibbey's ACAV: a view through the cargo hatch into the personnel compartment. Personal effects on the stretchers suspended from the ceiling include a military stationery pack and a portable AM/FM radio with cassette player. On the floor of the compartment are wooden crates and ammunition boxes. (Doug Kibbey)

This M113 apparently fell victim to a landmine that blew off the left drive sprocket and front three road wheels. The trim vane and its hinges are missing, suggesting that they may have been cannibalized for use on another M113. The support arm of the trim vane is dangling on the glacis. An early-type armored shield is mounted on the commander's cupola. Another M113 sits to its right, with a rolled-up section of track stored on the roof. (Carl T. Heller)

Photographed at a military scrap yard, this U.S. Army M113 evidently was struck by a large, high-explosive projectile of some sort, probably much larger than a rocket-propelled grenade. Part of the roof was blown off, and the inside of the driver's hatch and the engine exhaust are visible. In the background is another derelict M113, stripped of its cargo hatch and commander's cupola. (Carl T. Heller)

"X-Ray" is an M113A1 used by an artillery forward observer: the man in the flak vest behind the gun shield marked "Illinois." Sitting next to the .50-caliber mount is an ARVN infantryman. The crossed cannons denote an artillery unit and, below them, "X-Ray" is painted in yellow on the .50-caliber machine gun shield.(Doug Kibbey)

ACAVs of G Troop, 2nd Battalion, 11th Armored Cavalry Regiment, start off on a morning patrol in Hau Nghia Province, South Vietnam, in 1972. The lead vehicle of a cavalry patrol carried the guidon. (Doug Kibbey)

G Troop, 2nd Battalion, 11th Armored Cavalry Regiment personnel prepare to set out on a morning patrol. Behind the two ACAVs is an M551 Sheridan light tank. In the foreground are the barrel, perforated barrel support, and ammunition box of an M2 .50-caliber machine gun. (Doug Kibbey)

"X-Ray," the artillery forward observer vehicle, appears during a stop by elements of G Troop, 2nd Battalion, 11th Armored Cavalry Regiment to disarm an antitank mine improvised from a dud artillery shell alongside this jungle trace. There is an M551 in the background. (Doug Kibbey)

"Greatful [sic] Dead," an ACAV with G Troop, 2nd Battalion, 11th Armored Cavalry Regiment, appears during an operation in Hau Nghia Province, South Vietnam, in 1972. In the background, other ACAVs in the troop prepare to leave the area. (Doug Kibbey)

A well muddied M113A1 ACAV proceeds down a road in South Vietnam, while the commander communicates through the boom microphone on his CVC helmet. The machine gun on the vehicle's right rear mount appears to be a .50-caliber instead of an M60. (William Powis)

This photograph was taken at a base camp perimeter in South Vietnam that became a vast mudhole after heavy, continuous rains. An ACAV sitting partially on a bank has a .50-caliber machine gun without a shield on the right rear mount, while the left mount, configured for an M60 machine gun, has a shield. Several metal stakes are secured around the front of the vehicle and fitted with chain-link fence as a defense against rocket-propelled grenades. (William Powis)

In this photograph processed in December 1971, an M113A1 of the 2nd Squadron, 11th Armored Cavalry Regiment pulls a water trailer through a stagnant pond. In the background, a bridge-layer, a Sheridan light tank, and other vehicles move along the stream, while an M548, an M113-based cargo carrier, sits in the stream to the right. (William Powis)

A soldier raises a barbed wire-wrapped gate, allowing the M113A1 hauling a water trailer to pass through a gap in the embankment. Several personnel who appear to be ARVN troops are aboard the APC. (William Powis)

An M113A1 ACAV churns its way through thick mud. A flotation cell is attached to the trim vane, and on the roof to the left is an insulated food container. (William Powis)

The cavalry's crossed swords and the designation of 2nd Squadron, 11th Armored Cavalry Regiment, are painted in yellow below the registration number of this M113A1 plowing through soupy mud. Covers have been draped over the open turret over the cupola and the receiver of the side-mounted .50-caliber machine gun. (William Powis)

Photographed at a base camp, this M113A1 has several boxes of linked 40mm grenades on the roof, indicating that the cupola gun mount probably held a Mk19 40mm automatic grenade launcher. The launcher itself is not in evidence. A distinctive gun shield, different than the typical ACAV front shield, is visible below the M60 machine gun lying on top of it. The air cleaner canister, with the cleaner element visible inside it, is visible to the left side of the vehicle. (William Powis)

ACAVs of the 2nd Squadron, 11th Armored Cavalry defend a perimeter. The closest vehicle has flotation cells on the trim vane and on either side, and a sun shield rigged on stakes. The next M113A1 has had the national star on the side painted black, affording the Vietcong a less conspicuous target for rocket-propelled grenades. (William Powis)

A 2nd Squadron, 11th Armored Cavalry ACAV sits in the partially inundated perimeter area, while a crewman in the cargo hatch goes about his business. The ramp door is open, showing what the color of the rest of the vehicle's exterior paint looked like under that film of mud. Nui Ba Den ("Black Virgin Mountain") rises in the background. (William Powis)

Another photo of M113A1 ACAVs of the 2nd Squadron, 11th Armored Cavalry, in a semi-inundated perimeter. A roll of chain-link fence is secured to the side of the ACAV in the foreground. (William Powis)

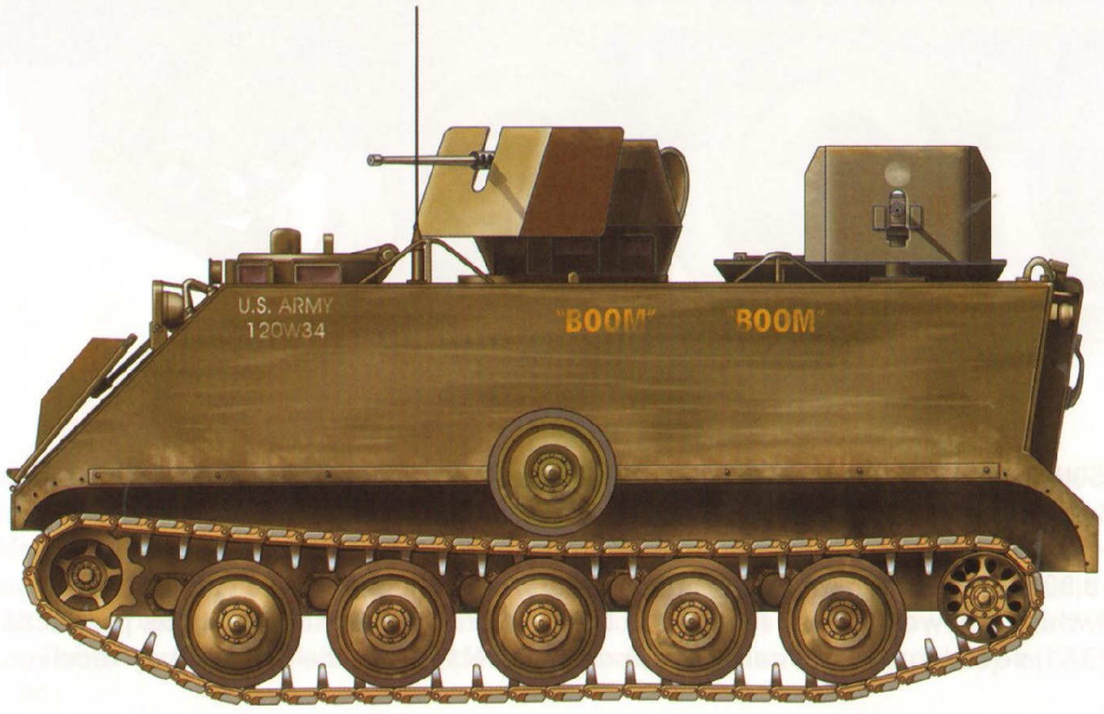
ACAVs sit in a muddy field, with an M551 Sheridan light tank in their midst. The front of the ACAV at the left is devoid of the trim vane, while the one at the right has the trim vane and flotation cells. (William Powis)

William Powis, of K Troop, 2nd Squadron, 11th Armored Cavalry, poses with his dog, Bitch, on the ramp of an M113A1 at a base camp in South Vietnam. A 20mm ammunition box is on the roof and a .50-caliber machine gun is in the right rear mount. The carbon monoxide warning sign evidently has been removed from its spot and placed toward the rear of the personnel compartment. (William Powis)

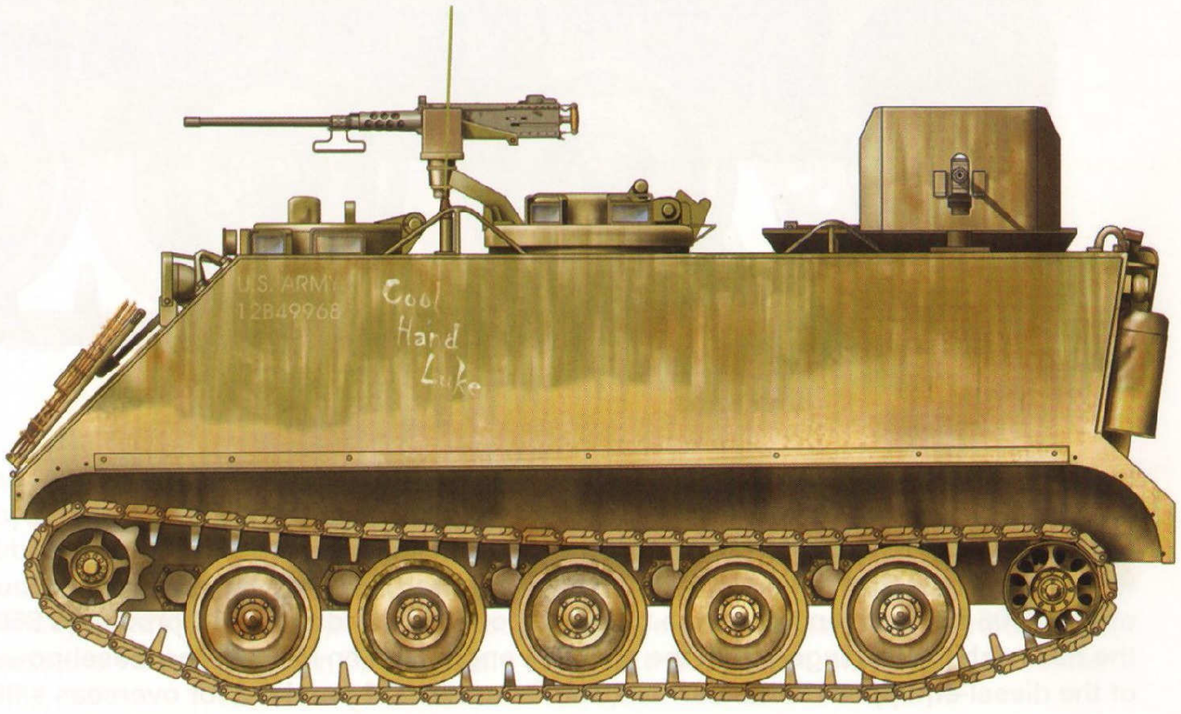
ACAVs defend a perimeter. In the foreground are the top of the trim vane and extension at the front end of an M113A1. With three machine guns each, a row of ACAVs could spew a formidable stream of fire when used as static-defense vehicles. (William Powis)

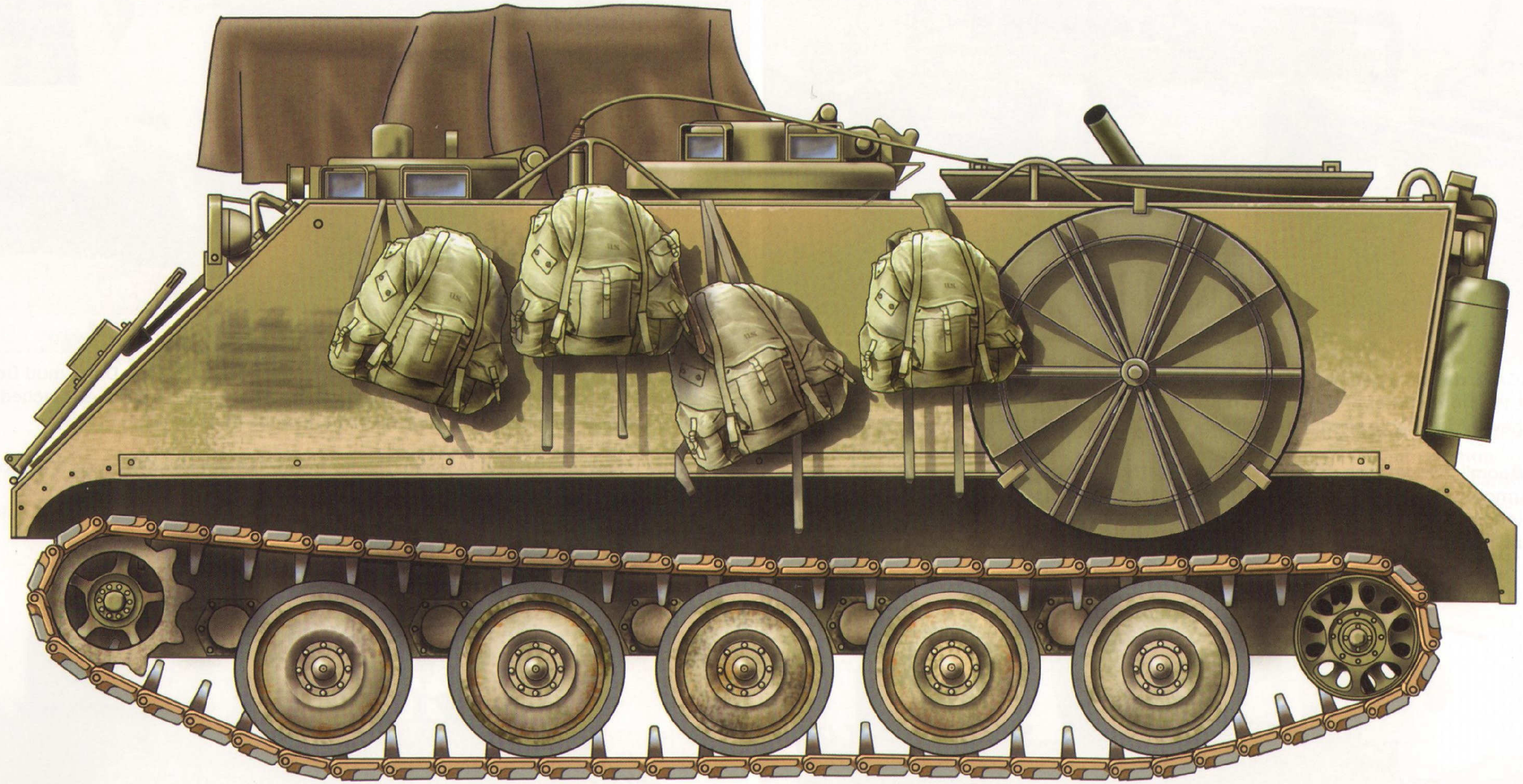
Crewmen of an M113A1 ACAV repair a track damaged near Ham Tam. Dried mud from recent operations covers the lower half of the vehicle; the spare road wheel attached to the side of the hull also shows the high-level mark of the mud. (William Powis)

"Boom" "Boom," an M113A1 ACAV, registry number 120W34, served with the 11th Armored Cavalry Regiment. It carried a spare bogie wheel on the left hull. A mushroom cloud was painted on the opposite side of the hull under "Boom" "Boom." The lettering and mushroom cloud were painted by the vehicle's driver, nicknamed "Pops."

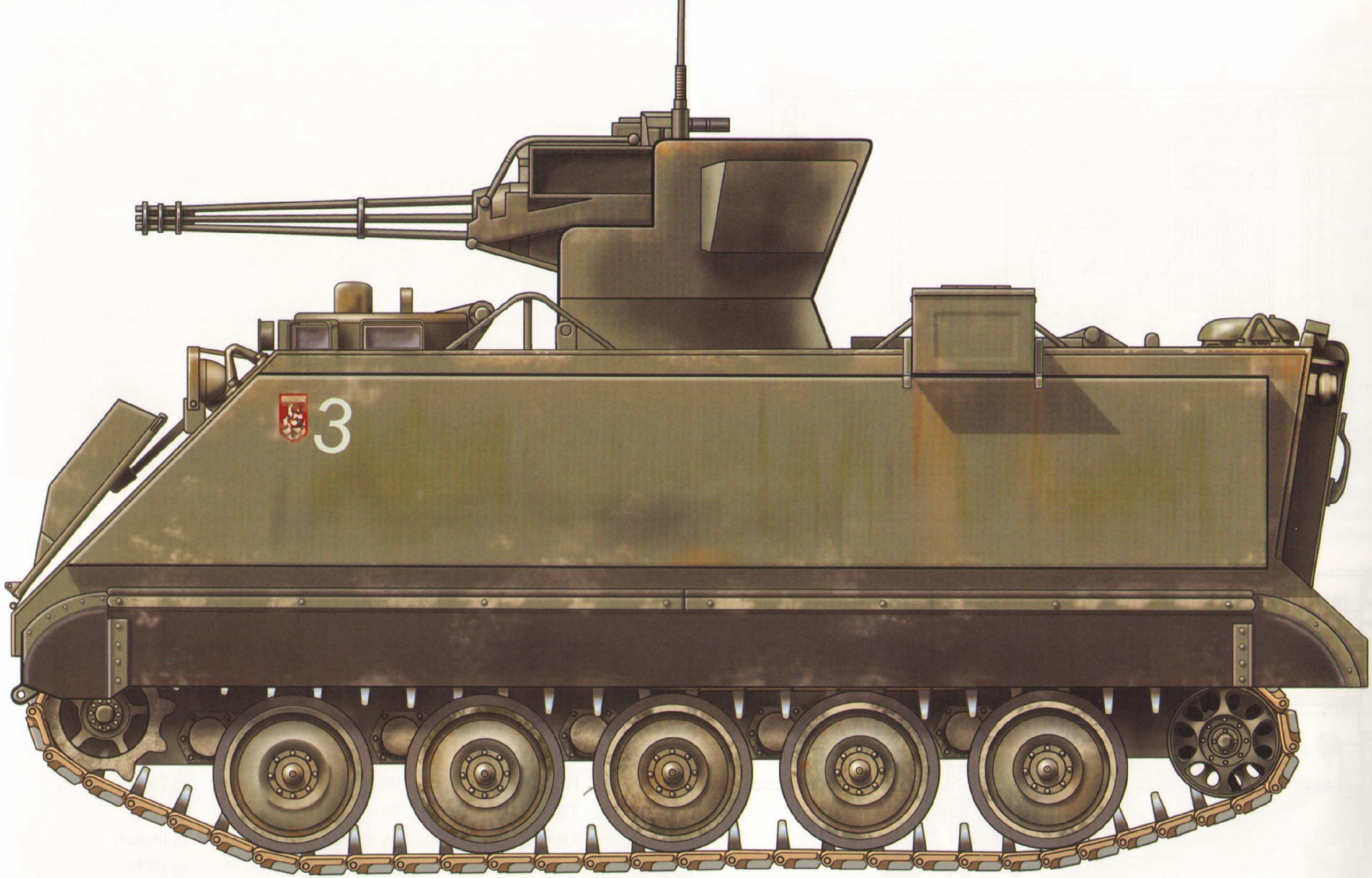


"Cool Hand Luke" was an M113A1 with Charlie Troop, 11th Armored Cavalry. It was one of five vehicles of that troop to be disabled by land mines in late 1970 and early 1971. Its nickname is a testament to the popularity of the Paul Newman movie "Cool Hand Luke" among servicemen in Vietnam.

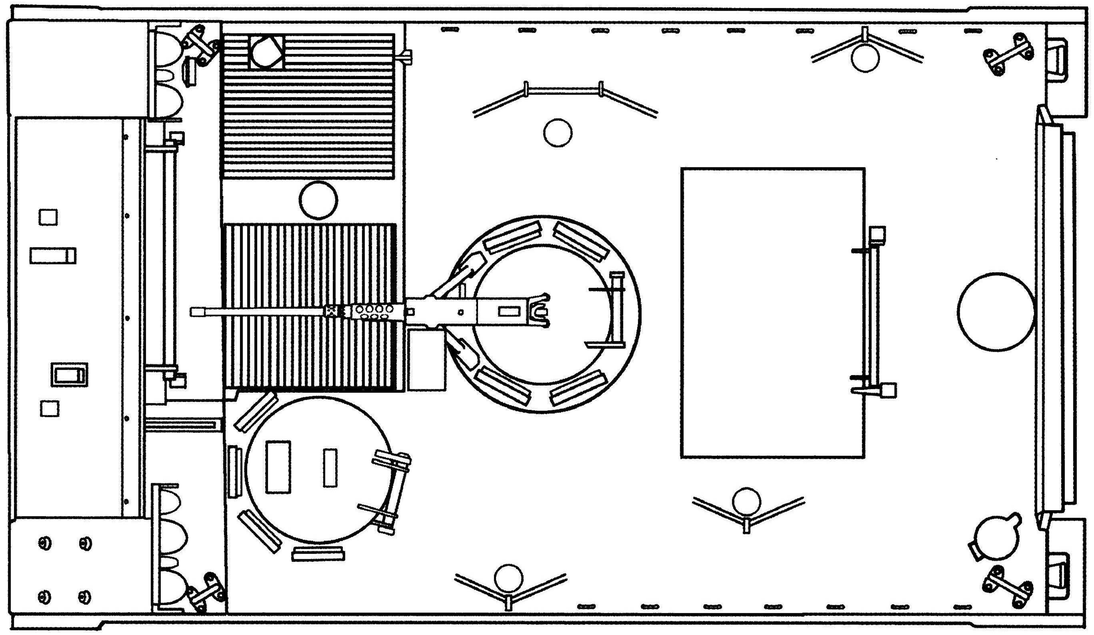




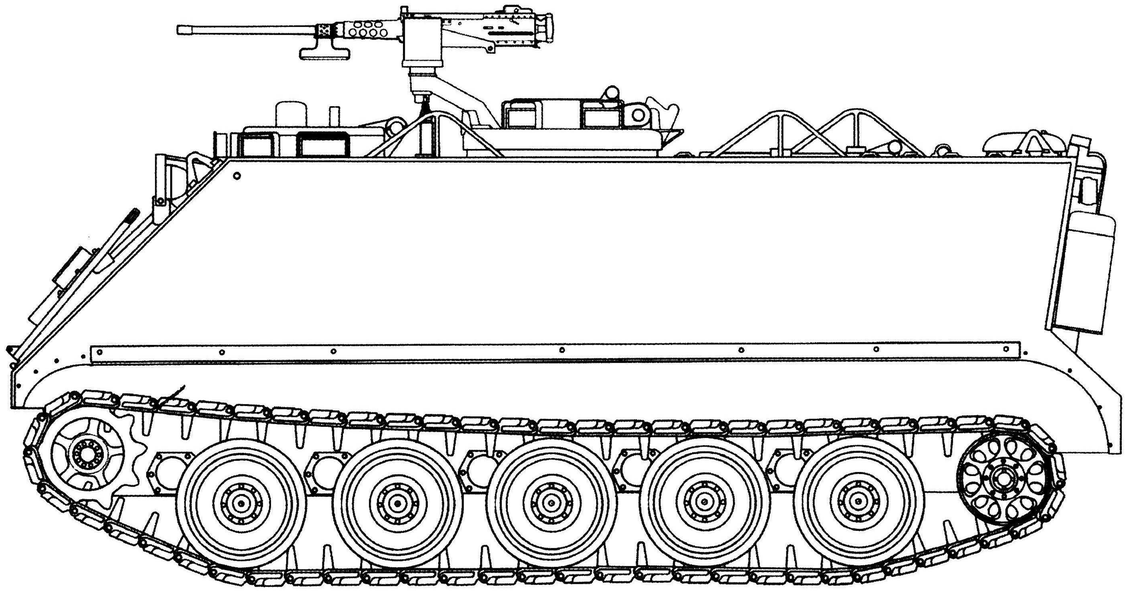
In 1970 this M106 107mm mortar carrier was with the 3rd Platoon, Company A, 1st Battalion, 50th Infantry Regiment (Mechanized). Stowed on the rear of the right side of the hull is the ground baseplate, used when the 107mm mortar was emplaced outside of the vehicle. Crew rucksacks are strapped to the hull. A canvas cover is draped over the .50-caliber machine gun mounted on the commander's cupola. Poking out from the overhead hatch at the rear of the vehicle is the muzzle of the mortar. The M106 was essentially an M113 with a roof hatch through which a 107mm mortar fired. The mortar, which was mounted on a 90 degree traversing mechanism, fired toward the rear of the vehicle. Procurement of the M106 began even before the type had been standardized. FMC produced 860 units of which 589 went to U.S. forces, the balance to overseas sales. Just as production of the base vehicles changed from the gasoline engine driven M113 to the diesel-powered M113A1, so did the mortar carrier, becoming the M106A1. The U.S. military received 982 of the diesel-equipped mortar carriers, with a further 334 provided for overseas sales.



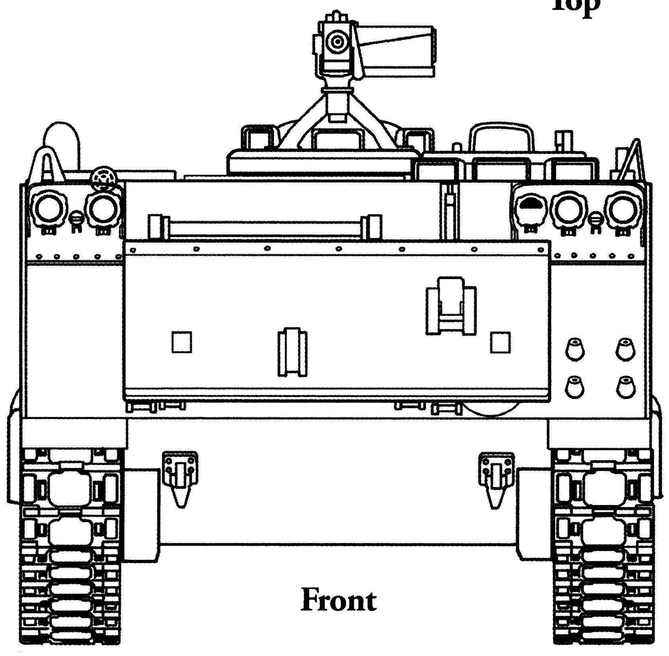
Although designed as a forward, mobile antiaircraft system, the M163A1 air defense system served in Vietnam mostly as a ground-assault vehicle. With its M168 six-barrel, 20mm rotary cannon in an M157A1 mount, it could saturate an area with up to 50 rounds per second, causing great destruction. The cannon was housed in an open-topped turret, and the vehicle had provision to carry 2,100 rounds of 20mm ammunition. To conserve ammunition, there was a low firing rate which could be selected by the operator. At the low rate the weapon fired "only" 1,000 rounds per minute. At the high rate setting, ammunition consumption was limited by the weapon system. Bursts could be fired only in groups of 10, 30, 60, or 100 rounds. The base vehicle for the M163 was the M741, which itself was essentially an M113A1 equipped with a lock-up suspension to stabilize the vehicle while firing. This particular vehicle had a spare ammunition box secured to the top of the hull. Next to the vehicle number, 3, is a shield insignia that appears on various M163A1s in Vietnam.



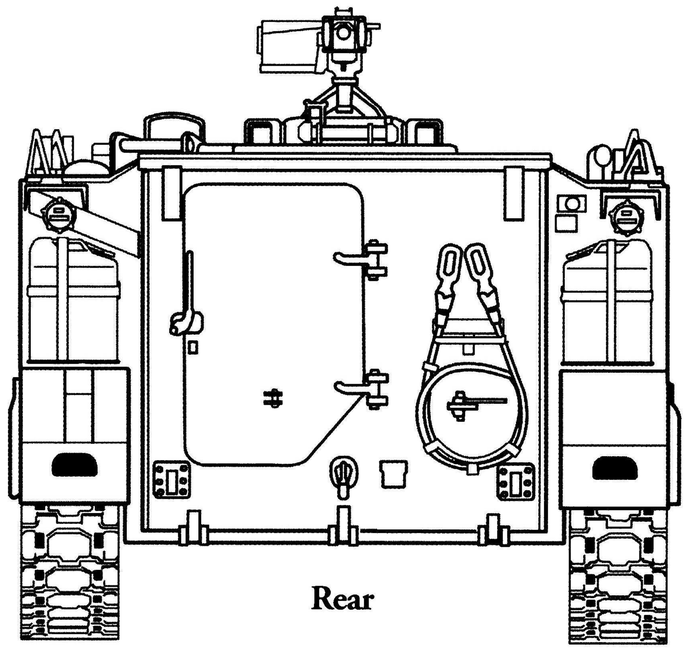
Top



Side



Front



Rear

Engine Data

ENGINE MAKE/MODEL	Chrysler 75M V-8	Detroit Diesel 6V53
NUMBER OF CYLINDERS	90 Degree V-8	V-6, 2 cycle
CUBIC INCH DISPLACEMENT	361	318
HORSEPOWER	215 @ 4000	212 @ 2800
TORQUE	332 @ 2800	492 @ 1300

Specifications

MODEL	M113	M113A1
WEIGHT	22,900 lbs.	24,080 lbs.
MAX TOWED LOAD	24,000 lbs.	24,000 lbs.
LENGTH	191.5 inches	191.5 inches
WIDTH	105.75 inches	105.75 inches
HEIGHT	98.25 inches	98.25 inches
TREAD	85	85
TRACK WIDTH	15 inches	15 inches
MAX SPEED	40 MPH	40 MPH
FUEL CAPACITY	80 gallons	95 gallons
RANGE LAND	200 miles	300 miles
ELECTRICAL	24V negative	24V negative
TRANSMISSION SPEEDS	6	3
TURNING RADIUS FEET	12 FT 7 IN	12 FT 7 IN

M113 ACAVs of Troop C, 3rd Squadron, 11th Armored Cavalry, are starting back to South Vietnam at the end of the Cambodian Campaign on 27 June 1970. The lead vehicle has the ubiquitous roll of chain-link fence stashed on front.

An M551 Sheridan tank and an M113 ACAV from Troop A, 11th Armored Cavalry, begin a sweep through tall brush for enemy forces in the vicinity of Long Binh, South Vietnam, in 1968 or 1969. A trooper in the fighting compartment of the M113 stands behind a shield for an M60 machine gun.

In 1970, troopers of B Squadron, 3rd Cavalry, 1st Australian Task Force of the 6th Royal Australian Force set out to establish a fire-support base south of Ap Rung La, South Vietnam.

GIs armed with M14 rifles bail out of an M113, with the soldier to the left grabbing the liquid container retainer strap on his way out. (Rock Island Arsenal Museum)

An M132 ACAV of B Troop, 1st Battalion, 4th Cavalry, leaves a staging area to participate in a road reconnaissance by the 1st Infantry Division north of Saigon on 20 or 21 October 1965. The commander's .50 caliber shield, which is turned to the side, is non-standard and appears to be unpainted. Large barbed wire rolls are stowed on the vehicle's front.

A .50-caliber machine gun pokes through the ACAV shield on an M113. This early variant of the shield has wide wings angled to the sides, and the slot for the machine gun is offset well to the right. (U.S. Army Transportation Museum)

M113s of the U.S. 25th Infantry Division roll through Saigon on 1 February 1968, the second day of the Tet Offensive. A long section of spare track is hanging from the front of the lead vehicle.

An M113 traveling with a convoy has just exited a roadway in Vietnam. To the right stands an infantryman with an M16 rifle and a portable radio, probably a PRC-25. The relatively light weight of the M113 was an asset when off-road in Vietnam, but came at the cost of poor protection from mines. (U.S. Army Transportation Museum)

An early-type ACAV shield with an offset aperture for the .50-caliber machine gun is installed on the commander's cupola of an M113. This photo predates the introduction of the two ACAV shields for M60 machine guns to the rear of the cupola.

U.S. Army troops and Marines of 3rd Battalion, 4th Marines work as a team to pick up chow, water, and Marines from an outpost near the airfield at Phu Bai, Vietnam, on 20 April 1965. (Lance Cpl. L.D. Hartsock / USMC)

Armored personnel carriers from 3rd Tank Battalion, conduct a joint patrol west of Quang Tri combat Base with the security platoon from Headquarters Company, Headquarters Battalioin, 3rd Marine Division on 11 January 1969. (Lance Cpl. Bill Carroll / USMC)

The Marines did not have indigenous M113s in Vietnam, then as now preferring instead their Amtracs. However, in joint Army/Marine maneuvers such as this 1969 operation near Quang Tri it was possible to see Marine personnel aboard the M113.

Convoy escort duty in Vietnam was officially the responsibility of MP units, but many transportation units took responsibility for their own protection by creating "gun trucks." Some of these gun trucks were created by placing the hulls of derelict M113s on the chassis of five-ton 6x6 trucks, to serve on convoy-escort duty. (U.S. Army Transportation Museum)

This M54A1-based gun truck, dubbed "King Cobra," features an elaborate and distinctive paint scheme. In addition to the .50-caliber, cupola-mounted machine gun with ACAV shields, two .50-caliber machine guns have been installed on the elbow mounts to the rear of the cupola, usually dedicated to M60 machine guns. (U.S. Army Transportation Museum)

"King Kong" is another M54A1-based gun truck featuring an M113 hull. Six such vehicles served as convoy escorts with the 523rd Transportation Company in the Central Highlands of Vietnam in 1971. This M113 had the early-style side shields for the .50-caliber cupola-mounted machine gun, as well as two unshielded .50-caliber machine guns accessible from the cargo compartment. (U.S. Army Transportation Museum)

The M113 part of "King Kong" awaits a new chassis. Gun truck service took a heavy toll on the trucks themselves, and the armor, whether in the form of M113 hull or armored box, was often transferred from one chassis to another. Above the cartoon painting of the great ape is the left side shield for an M2 .50-caliber machine gun. The cargo hatch is open to the rear. (U.S. Army Transportation Museum)

An M113A1 equipped with a lightweight folding assault bridge, part of Troop A, 3rd Squadron, 4th Cavalry Regiment, prepares to tow a mired ACAV in South Vietnam on 3 August 1969. This version of the M113A1 went by numerous names, including: porta-bridge, lightweight assault bridge, marginal terrain assault bridge. The aluminum-alloy bridge unit weighed 2,700 pounds, had an unfolded length of 33 feet, and a capacity of 15 tons.

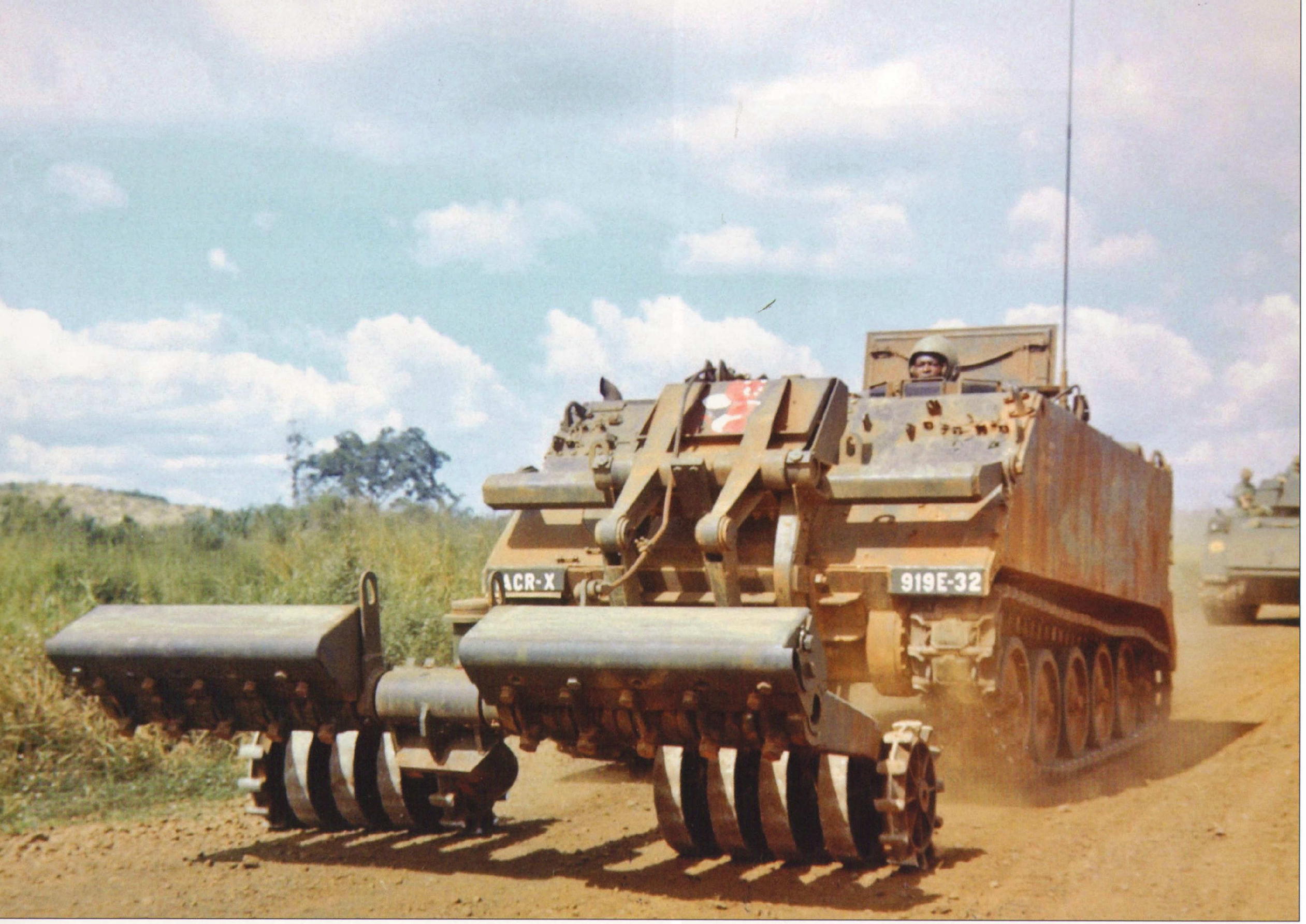
This bridgelayer proceeds down Highway 23 toward a rubber plantation following a reconnaissance in force on 3 August 1969. The folding bridge was deployed hydraulically and could be put into place in two minutes. The crew could remain inside the vehicle during the entire operation.

A M113A1 bridgelayer with the vehicle number 115 stands by while a column of M113A1s from Troop A, 3rd Squadron, 4th Cavalry, file into a rubber plantation, on 3 August 1969. Bringing up the rear of the column is another M113A1 bridgelayer.

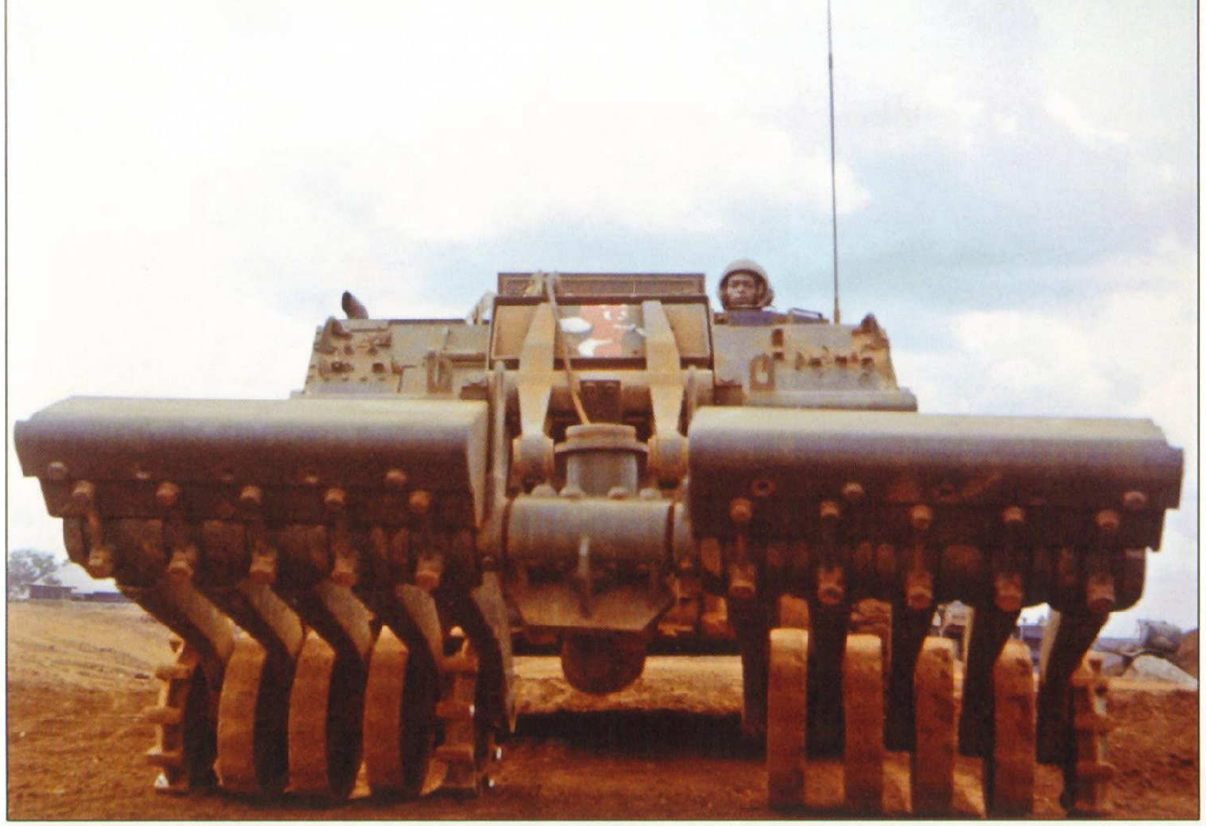
An M113A1 pulls an ACAV out of a drainage ditch at the rubber plantation. Troop A, 3rd Squadron, 4th Cavalry spent much of 3 August 1969 recovering mired APCs.

Number 32, an ACAV with Troop A, 3rd Squadron, 4th Cavalry, crosses a lightweight folding assault bridge on a rubber plantation.

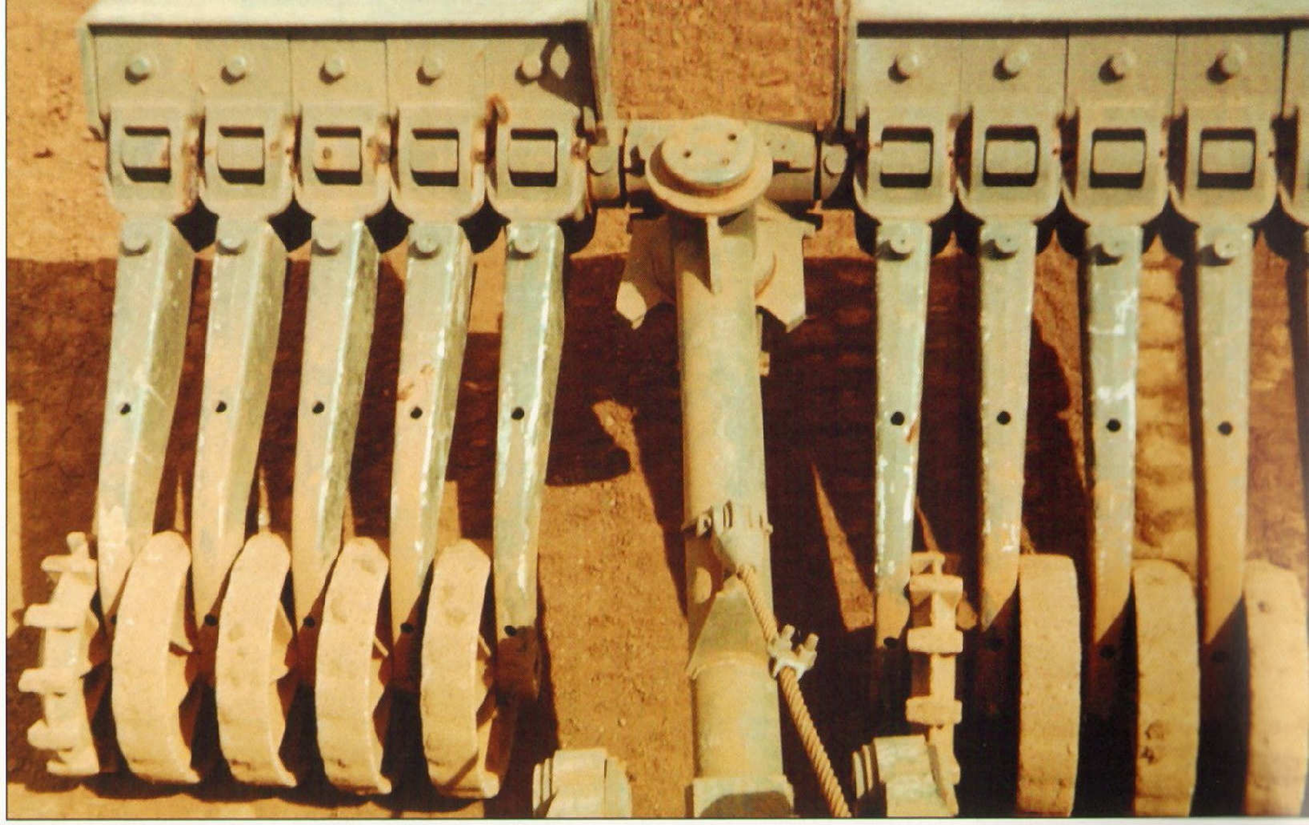
The weight of the bridge strained the M113's suspension; the unfolding and emplacement operation stressed the front end of the suspension to the maximum, causing torsion bars and other suspension components to wear out quickly. (Ordnance Museum)



This M113 from the 919th Combat Engineer Company, 11th Armored Cavalry Regiment, has been outfitted as a mine-clearing vehicle. Projecting from the front end is the roller assembly. The vehicle, seen near Long Giao, South Vietnam, in November 1968, lacks ACAV gun shields.



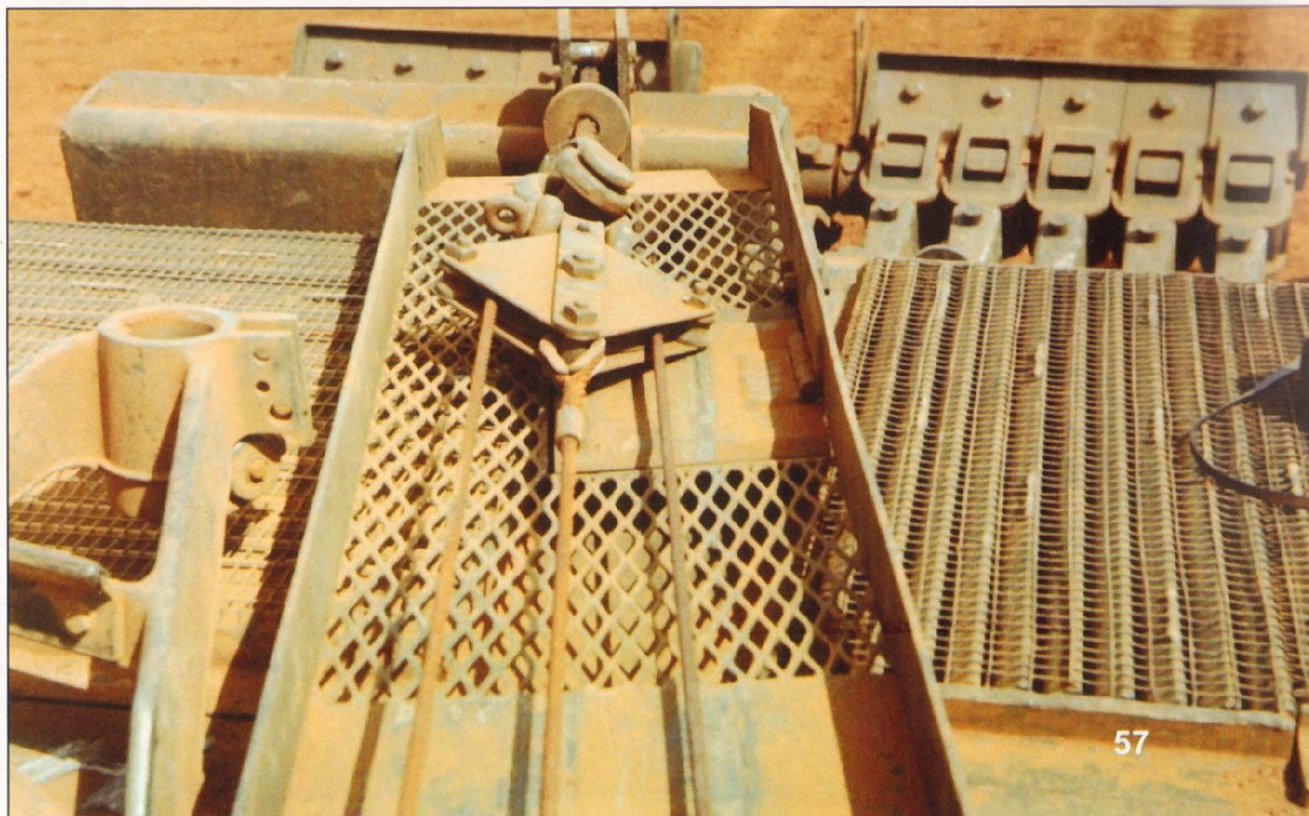
A head-on view of the same mine-clearing APC, with Private Henry G. Moody at the driver's controls. The inner and outer roller on each set of five rollers has large, lug treads, to provide traction to the rollers.



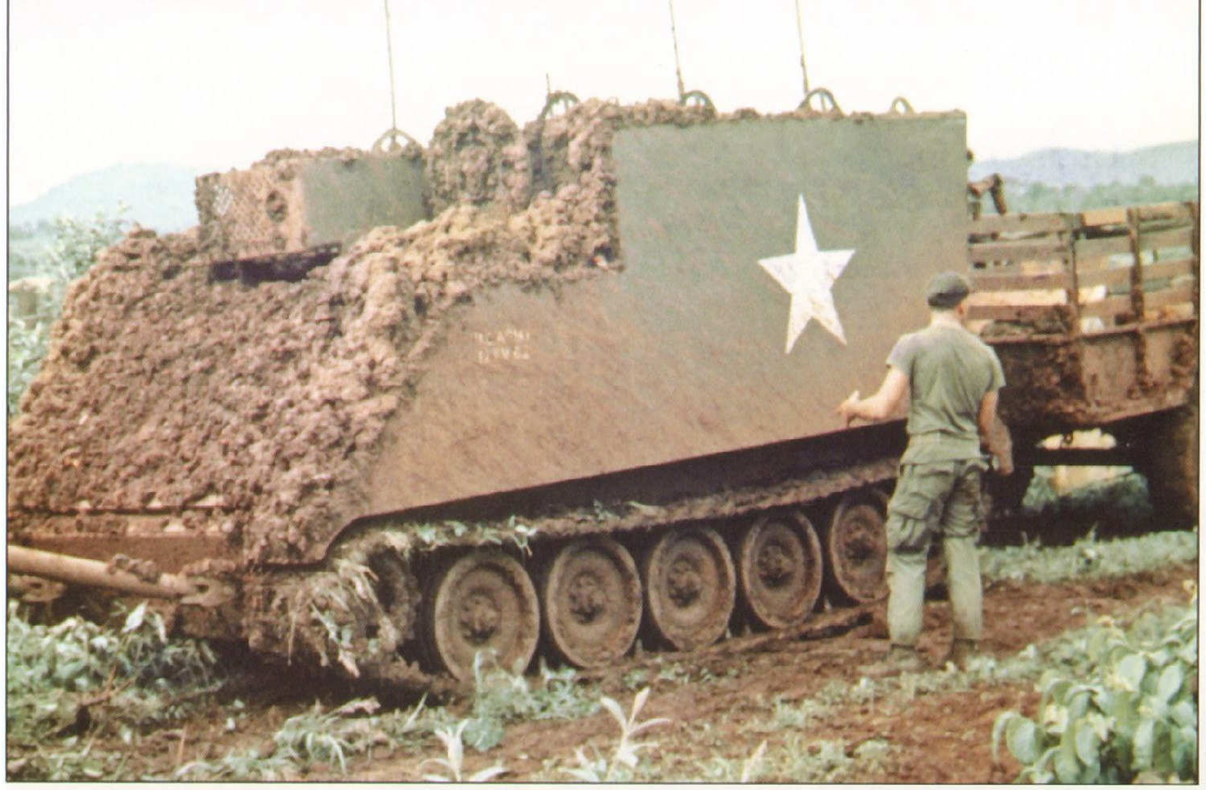
This overhead view of the mine-clearing device, taken from the front roof of the M113, shows the tanks, rollers and their suspension arms, and the large, pivoting arm extending from the front of the vehicle. The cable attached to the arm lowers or raises the roller assembly.

Specialist 4th Class Fred Hendricks, sent to Vietnam as a consultant from the Mobility Equipment, Replacement, and Development Center at Ft. Belvoir, Virginia, uses a compressed air hose to fill the tanks at the front of the mine-clearing apparatus of the 919th Combat Engineer Company's mine-clearing M113.

An operating cable, with a snatch block arrangement and a protective guard, are on the forward part of the roof of the mine-clearing vehicle. A winch on the vehicle (not seen here) powers the cable. The elbow mount for a machine gun are at the lower left.



An M577A1 command-post carrier leads a column of ACAV-type M113A1s past an MP checkpoint between Fire Base Dakota and Di An, South Vietnam, on 4 March 1970. The vehicles belonged to the 1st Battalion (Mechanized), 2nd Brigade, 16th Infantry Regiment. The soldier at the right on the M577A1 appears to be sitting in a seat with an armrest.



At Fire Base Exodus in late June 1970, an M577A1 towing a trailer is deploying as a fire-directional vehicle by members of the 52nd Artillery Group. The vehicle is under tow on muddy terrain, and the towing vehicle apparently has plastered the front of the carrier with a heavy complement of mud. The driver's hatch was open when the onslaught of mud hit the vehicle.

A command post tent has been set up between two M577s that are acting as the field headquarters for C Troop, 1st Squadron, 11th Armored Cavalry Regiment on 3 March 1967, during Operation Junction City, the largest airborne operation in the Vietnam War. The tent is actually two tents, joined together between the two large side doors. The canvas covers are hung over a detachable tubular framework, with one end fastened to the rear of the M577.

Behind a chain-link fence to thwart rocket-propelled grenades, three M577s are serving as part of the tactical operations center for the 1st Squadron, 11th Armored Cavalry Regiment, at Fire Support Base Holiday Inn, near Bien Hoa, in late December 1968. A long tent links the rears of the vehicles. The vehicles are parked with their rears communicating with the long tent. The compound is bristling with radio antennas.

Although clearly not taken in Vietnam, this photo none the less illustrates just how much space that the tarpaulin "annex" added to a M577. Unfortunately, this space was not armored, and obviously was not available while the vehicle was in motion. (Patton Museum)

An M106 107mm mortar carrier (or self-propelled mortar) of the 3rd Platoon, Company A, 1st Battalion, 50th Infantry Regiment (Mechanized) crew lays down a fire mission in Vietnam sometime in 1970. The loader is about to drop a round in the tube, and ready rounds are stacked on the roof of the vehicle and on the opened compartment hatch to the right. The helper holding a round on his shoulder is standing on the revolving base of the mortar mount. A with a cleaning sponge leans against the back of the vehicle next to the man standing on the ramp.

The mortar is installed within the fighting compartment of the 107mm self-propelled mortar M106A2. The mortar bridge and ground baseplate are on the side of the vehicle and the rotator assembly is on the right rear mud guard. (TACOM LCMC)

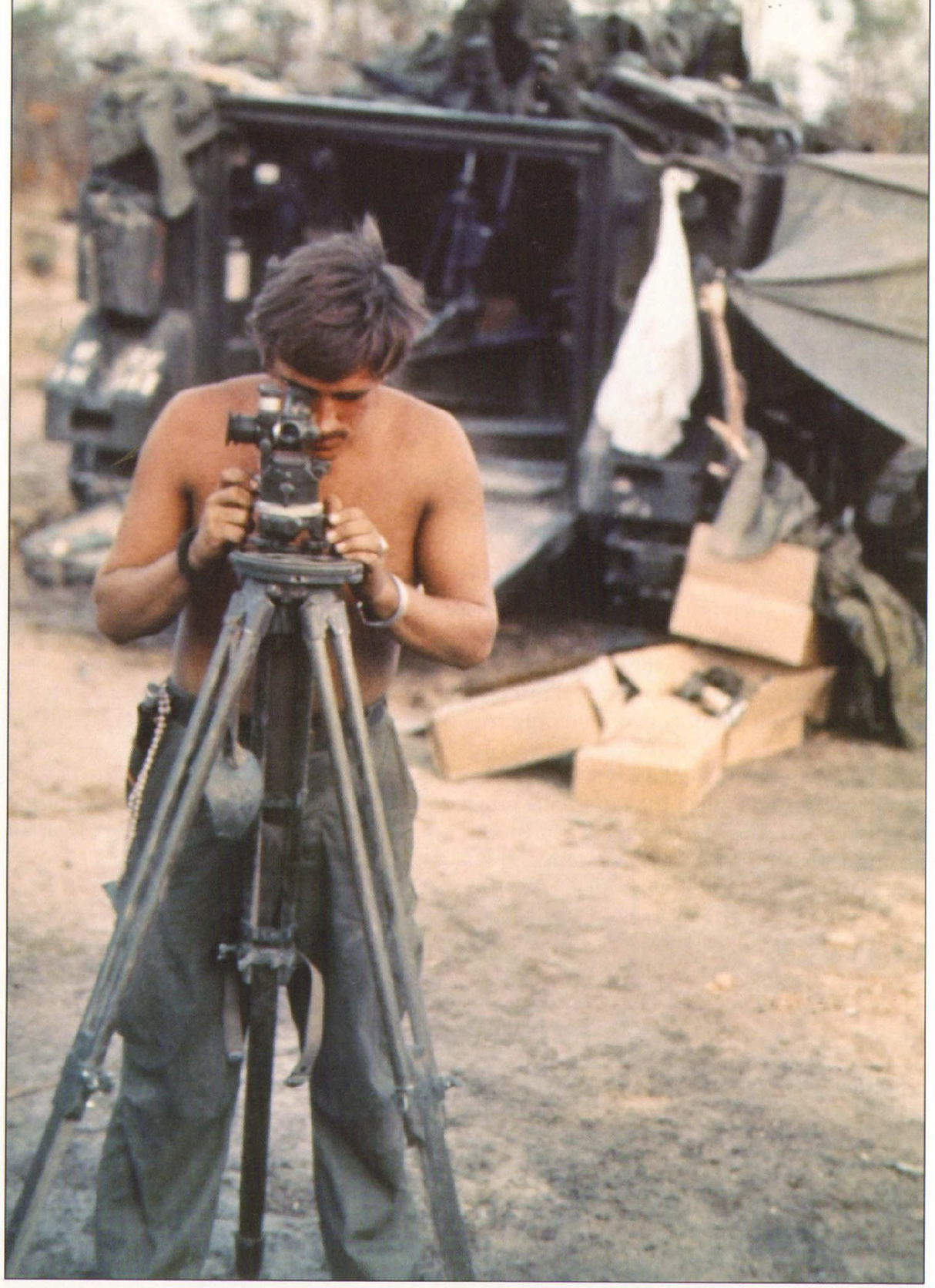
This M106 of the 50th Infantry Regiment conducts a fire-support mission with its 107mm mortar in Indochina in 1970. An abundance of gear can be seen stowed on the side of the vehicle.

The 81mm self-propelled mortar M125A2 is similar to the M106, except that it carries an 81mm mortar and lacks the externally stowed mortar bridge, baseplate, and rotator for external firing. The -A2 version of this mortar carrier is similar to the -A1 version, but has an improved engine-cooling system and suspension. (TACOM LCMC)

An M113 marked as an ambulance prepares to cross a canal during an operation in Vietnam on 24 March 1967. A push bar links this vehicle to another M113 (outside of the photograph to the right). The two vehicles were operating in tandem - a technique used when negotiating difficult terrain.

The Mortar Platoon of the 11th Armored Cavalry Regiment fire their 107mm mortar at their base camp at Long Giao, South Vietnam, in late August 1967. The center leaf of the mortar compartment hatch is hanging off the upper side of the M106 carrier, and the elevating arm of the mortar is visible through the rear hatch. The machine gun shields on top of the carrier are ACAV-style.

An M106 107mm mortar carrier proceeds down a muddy trail. Visible on the right side of the vehicle are the base plate and bridge, used when firing the mortar on the ground. On the right rear mudguard is the rotator that rests on top of the base plate during mortar-firing operations away from the vehicle. The rear ramp sports a peace symbol.



Sergeant John Smith of Company A, 50th Infantry Regiment (Mechanized), uses a transit to establish the azimuth of a fire mission during a search-and-clear mission in Southeast Asia in 1970. The vehicle is an M125A1 81mm self-propelled mortar, as indicated by the distinctive, wedge-shaped mortar base. (The 107mm mortar of the M106 is mounted directly to the turntable.) A canvas tarp is rigged to the vehicle as a cover.

The M163A1 Vulcan, based on the M113A1 chassis, mounted the 20mm Vulcan Air Defense System. At the root of the system was an M168 20mm cannon, a six-barreled rotary weapon housed in an open turret with a maximum rate of fire of 3,000 rounds per minute. Despite its intended purpose as a self-propelled antiaircraft gun, the vehicle adapted itself well to antipersonnel missions. This M163A1 was photographed while firing at enemy positions along Highway 13, in South Vietnam, in mid-January 1969.

Specialist 4th Class Frank Peyton of the 1st Battalion, 59th Artillery Regiment, makes a mechanical adjustment during live-firing exercises at Todendorf, West Germany, in July 1970. The panel with the grab handles is the rear part of the gun shield. The gun had a maximum elevation of 85 degrees. A tarp at the right covers the radar antenna that was part of the weapon system.

An M163A1 gunner with Battery C, 1st Battalion, 59th Artillery Regiment, peers at the screen of the XM61 automatic lead computing sight, with the circular glass screen. To the left of it is an XM134 telescopic sight. To the right of the XM61 sight, below the brim of the helmet, is a bracket for an AN/TVS-2B night-vision sight, not installed here. Below the sights is the gunner's control panel.

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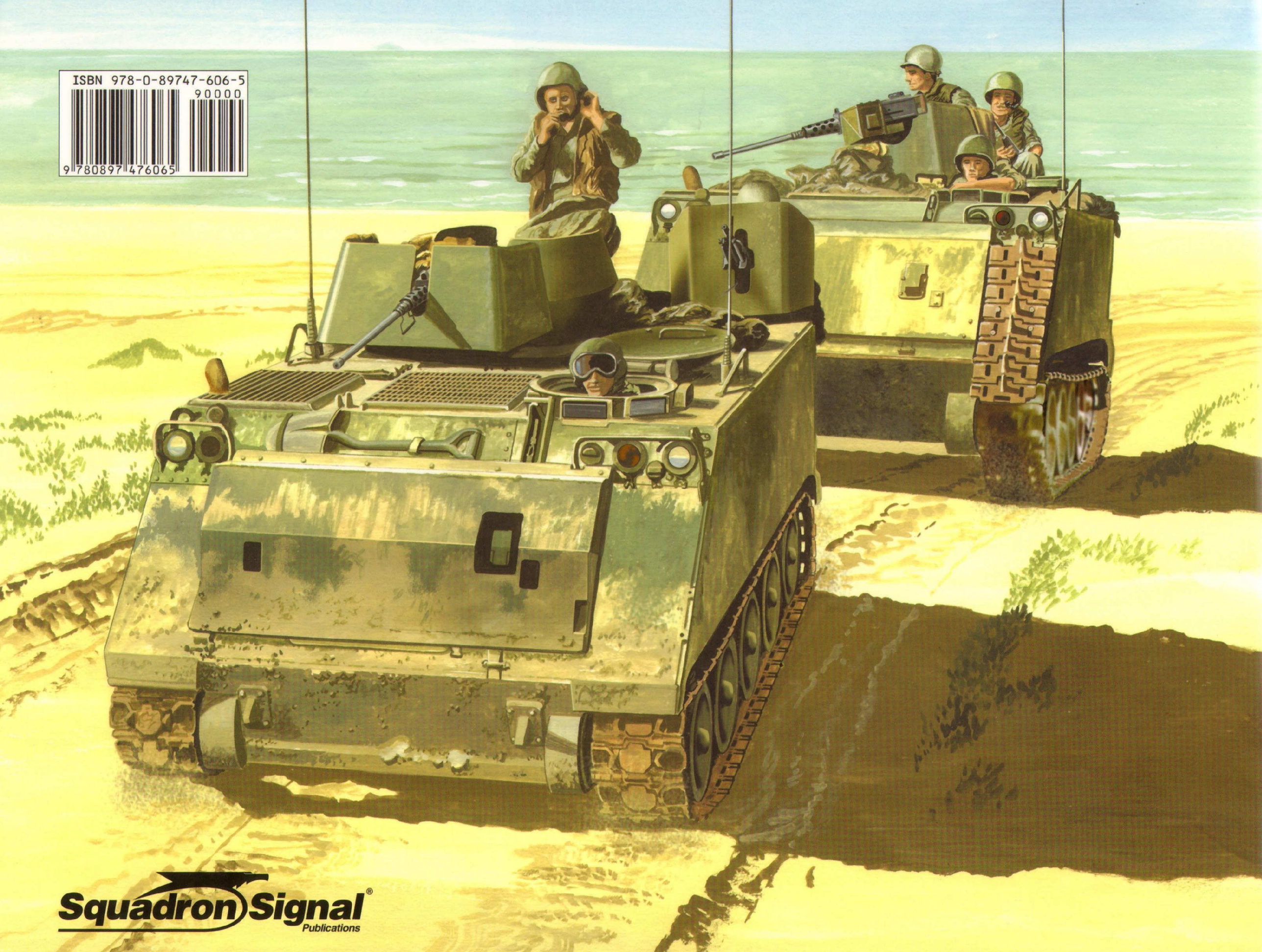

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